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January 10, 1997

Mr. Duane E. Heaton Remedial Project Manager Waste Management Division 77 W. Jackson Blvd. HSRL-6J Chicago, Illinois 60604

Re: Transmittal - Technical Memorandum

Predesign Investigation

Blackwell Landfill Response Action

Dear Duane:

We have completed the Technical Memorandum for the Predesign Investigation conducted last fall at the Blackwell Forest Preserve NPL Site. Five copies are attached for your review. In addition, we are sending three copies of the report to Rick Lanham at Illinois EPA (IEPA).

We are also in the process of completing the 100 Percent Design of the Leachate Collection System. We would like to arrange a meeting at the convenience of you and Rick Lanham to discuss the findings in the attached report.

Please call me so that we can set up a date when the Forest Preserve District and Montgomery Watson can get together with U.S. EPA and IEPA.

Sincerely,

MONTGOMERY WATSON INC.

Peter J. Vagt, Ph.D. Project Coordinator

cc: Rick Lanham, IEPA (3 copies) Kunt Lindland, US EPA - Assistant Regional Counsel

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2100 Corporate Drive Addison Illinois 60101 Tel 708 691 5000 Fax: 708 691 5133 Sea so the Arras Land hence Needs

Effective August 3,1996



January 10, 1997

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TECHNICAL MEMORANDUM PREDESIGN INVESTIGATION

BLACKWELL LANDFILL NPL SITE DUPAGE COUNTY, ILLINOIS

JANUARY 1997

PREPARED FOR:
FOREST PRESERVE DISTRICT
DUPAGE COUNTY, ILLINOIS
•••

PREPARED BY:
MONTGOMERY WATSON

PROJECT NO. 1252008



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TECHNICAL MEMORANDUM PREDESIGN INVESTIGATION

BLACKWELL LANDFILL NPL SITE DUPAGE COUNTY, ILLINOIS

JANUARY 1997

Walter Buettner Supervising Engineer Peter J. Vagt, Ph.D., CPG

Project Coordinator

TECHNICAL MEMORANDUM PREDESIGN INVESTIGATION BLACKWELL LANDFILL NPL SITE DUPAGE COUNTY, ILLINOIS

INTRODUCTION

This Technical Memorandum presents the results of the Predesign Investigation conducted between October 7 and October 30, 1996 at the Blackwell Landfill NPL site (landfill) in DuPage County, Illinois. The Predesign Investigation was conducted in accordance with the Design Work Plan (August 1996), which was approved by the U.S. EPA on August 23, 1996. The scope of the predesign investigation was outlined in the Statement of Work (SOW) (Appendix A to the Consent Order between the U.S. EPA and the DuPage County Forest Preserve District (FPD), U.S. EPA Docket No. V-W-'96-C-341, March 1, 1996), and included the following tasks:

- Limits of Fill Determination
- Cap Continuity/Characterization
- Arboreal Impact Investigation
- Monitoring Well Assessments
- Gas Vents Evaluation

However, the Arboreal Impact Investigation has not been performed to date due to scheduling difficulties, and the remaining investigations were not sufficient to collect all data necessary. Luture design submittals. Therefore, this Technical Memorandum reports the findings of the completed investigation, and recommends additional activities to complete the Predesign requirements.

This Technical Memorandum includes the following:

- A summary of field activities,
- Recommendations for additional cap characterization, and
- Recommendations for beginning the Groundwater Monitoring Plan.

SUMMARY OF FIELD ACTIVITIES

Activity 1 - Limits of Fill Investigation

The purpose of the Limits of Fill Investigation Activity was to delineate the lateral limits of waste around approximately half of the landfill. The southwest and extreme east sides of the landfill were excluded from the investigation because the approximate limits of waste have been previously established at these locations. The investigation was accomplished by performing a limited geophysical survey to determine the general waste boundary, followed by a test boring program to confirm waste limits. The geophysical survey was performed from October 7 through October 9, 1996, while the test boring program was performed from October 9 through October 15, 1996.

The results of the geophysical survey are presented in Appendix C. This information was immediately available in the field at the start of the drilling program, and was used to establish initial borehole locations at approximate 100-foot intervals around the landfill. Two to four borings were required at each boring interval to establish waste limits. Table I lists the test boring locations and identified waste elevations. Figure I provides the location of the test borings and the limits of waste. Appendix A contains the test boring logs for locations shown on the figure. The locations of each geophysical transect and boring were staked and surveyed by a licensed surveyor prior to the start of the investigation. Location coordinates were established to the local grid system, and grid elevations were referenced to Mean Sea Level (MSL).

Soil cuttings generated during the drilling program were compacted back into their respective borings. At least a one-foot thickness of bentonite was also compacted over waste, where encountered.

The investigation has modified the previously mapped limits of waste in three specific areas of the landfill. The first modified area is located in the northern portion of the landfill near boring TB23 where a triangular area was not previously thought to contain waste. The investigation determined that this triangular area does contain waste, with waste material encountered at depths ranging from 6 to 12 feet, as identified in borings TB33, TB23, and TB35. The second modified area is located between borings TB44 and TB58 where the new limits of waste have been moved 40 to 50 feet east (outward). Waste material was encountered at depths ranging from 5 to 7.5 feet, as identified in borings TB45, TB47, TB48, TB51, TB52, and TB55. The third modified area waste is located between borings TB57 and TB68 where the limits of waste have been moved 25 to 50 feet west (inward). This change in the limits of waste is based on test borings TB59, TB60, TB61, TB63, TB66, TB67, TB68, and TB69 where waste material was not encountered in the 8 to 10 foot deep borings.

Slight modifications to the limits of waste were also made at other locations within the remainder of the investigation area. However, these changes did not exceed a shift more than 20 feet inward or outward from the previously mapped limits of waste.

Technical Memorandum

January 1997

Waste material was not encountered in the boring section containing TB67, TB68, TB69, and TB70, despite these borings being extended to depths of 15 feet. It is possible that these borings did not extend deep enough to encounter the surface of the waste. Therefore, we recommend completing a deeper boring near TB68 (see Figure 3) to a maximum depth of 30 feet. If waste is encountered in this boring, additional deep borings will be drilled to confirm actual waste limits, as outlined in the Field Sampling Plan for Pre-Design Investigation Activities. If waste is not encountered, this boring will mark, for future design purposes, the outside edge of waste. We propose starting this activity in March 1997.

Activity 2 - Cap Continuity/Characterization Investigation

The objective of the Cap Continuity/Characterization Investigation was to identify areas of the landfill which do not contain a cover meeting the requirements of 35 IAC Part 807 (i.e., a minimum of 2 feet of suitable material). Shallow test borings were drilled into the landfill cap at selected locations with hollow-stem augers and cover thicknesses were measured. Selected soil samples were collected from these borings for analysis of grain size distribution and permeability. The investigation was performed from October 7, 1996 through October 17, 1996.

Test boring locations were based on a grid system with 200-foot centers. The grid system covered the entire area within the limits of waste, except for the southwest portion of the site where it has been previously documented that the cover thickness greatly exceeded 2 feet. However, additional boreholes were drilled at 100-foot grid centers where the cap thickness at the 200 foot grid locations were less than 2 feet (e.g. around TB1 and TB3). The location of each boring was staked and surveyed by a licensed surveyor prior to drilling. Location coordinates were established to the local grid system, and grid elevations were referenced to Mean Sea Level (MSL). Soil cuttings generated during the drilling program were compacted back into their respective borings. At least a one foot thickness of bentonite was also compacted over waste, where encountered.

The resultant landfill cover thickness data is summarized in Table 2 and Figure 2, with boring logs presented in Appendix B. Cover thickness data from 9 extraction wells installed at the Blackwell Landfill during May and June 1996 are also summarized in Table 2 with locations presented on Figure 2.

The boring information indicates that, except for two discontinuous areas, the landfill cover meets, or exceeds, the minimum 2 foot thickness requirement of 35 IAC Part 807. The two exceptions are located in the northwest corner of the landfill around TB3A, and around TB3C, EW01 and EW1A (see Figure 2).

Shelby tubes samplers were used in attempts to collect suitable samples of undisturbed cap material for permeability testing. However, suitable samples could not be obtained at several borehole locations, even after numerous attempts, due to sampling difficulties (e.g. Shelby tube sampler striking stones). Furthermore, some collected samples were judged by the testing laboratory to be unsuitable for permeability testing due to excessive sample disturbance, or the inability to saturate the sample.

The available grain size distribution and permeability test results are summarized in Tables 3 and 4, and the laboratory data sheets are compiled in Appendix D. Permeability results are also summarized in Figure 2. These data indicate that the landfill cap is comprised of silty clay (USCS classification CL), with some clayey silt (USCS classification ML). These materials are considered suitable as landfill cover material.

While the extent of the landfill cap meeting the thickness requirements of 35 IAC Part 807 has been identified, data gaps for permeability and/or grain size distribution exist at 15 borehole locations (TB1, TB1B, TB3, TB3B, TB3D, TB4, TB5, TB7, TB9, TB10, TB11, TB14, TB16, TB17 and TB19). We recommend that representative samples be obtained at these locations (see Figure 3) to complete the cover material characterization. In addition, the permeability data at borehole TB2 suggests that the cover material is suitable, although marginally adequate. Therefore, we propose to re-sample this location for confirmatory permeability testing. The Shelby tube samples will be collected from either a test boring, or a shallow test pit. Excavating a shallow test pit at some locations will allow visual inspection of the landfill cap to identify potentially suitable sampling locations. If we are unable to collect undisturbed soil samples with the Shelby tube sampler, we will instead collect undisturbed block samples which will undergo laboratory triaxial permeability testing. We proposed starting this activity in March 1997.

Activity 3 - Arboreal Impact Assessments

The Arboreal Impact Assessment is intended to determine the distribution and depth of existing tree and woody vegetation root systems on the landfill. However, this assessment has not been performed to date due to scheduling difficulties late in the fall, and we have re-scheduled it to start during Spring 1997.

Activity 4 - Monitoring Well Assessments

The objective of the Monitoring Well Assessment activity was to confirm the integrity of existing monitoring wells, and to aid in the identification of unnecessary monitoring wells and piezometers. The integrity survey was intended to be completed on monitoring wells numbered G-100 through G-120, inclusive, and those wells proposed for inclusion in the quarterly groundwater monitoring program. As well, it was intended that each well be redeveloped. However, due to the extraneous nature of some development data (i.e., some wells will be proposed for abandonment) and the excessive amounts of water which would have been generated (i.e., most of the wells had 4 inch diameter casings), the FPD elected to undertake redevelopment only on those wells initially proposed for inclusion in the quarterly groundwater monitoring program. If required, additional monitoring wells may be redeveloped, if they are added to any future detection or compliance groundwater monitoring program.

The integrity survey was conducted from October 23 through October 29, 1996, and included inspections to determine if wells were structurally sound, had adequate protection and were capable of providing representative groundwater quality data. Photographs were taken at each well location, and weep holes were drilled in the well casing, if adequate

drainage did not exist. The results of the survey are summarized in Tables 5 and 6, with well development summaries provided in Appendix E. Photographs are filed in Montgomery Watson's project files.

The well integrity survey indicated that the majority of the monitoring wells were structurally intact and secure. The exceptions are noted below:

- Two monitoring wells (G104 and G106) appear to have filter pack sand in the bottom of the wells, indicating possible damage to the well screen or well pipe joint.
- Eight monitoring wells (G100A, G100B, G106, G108, G114A, G119, G121 and G136) have missing or damaged locks, or damaged protective casings with rusted-off or broken lid hinges.
- One monitoring well (G114A) has a cracked and heaved surface seal.

The redevelopment efforts on those wells initially proposed for inclusion in the quarterly groundwater program were generally successful, with indicator parameters stabilizing during redevelopment. Purge water was contained on-site and was later disposed of by the FPD under their leachate disposal permit. However, monitoring well G136 was purged dry after removing approximately one and a half well volumes, with recharge measured at 1 foot recovery in 3 minutes.

The groundwater monitoring network at the landfill was reviewed to identify monitoring wells and piezometers which could be abandoned or retired from future use. Rational for possible abandonment or retirement included; 1) damaged or missing locks, damaged protective casings with rusted-off or broken lid hinges, or insecure surface seals, any of which would require major effort to maintain integrity, 2) screened intervals located within a till aquitard instead of a groundwater aquifer, and 3) wells that are duplicates of nearby wells. A list of the identified wells and piezometers is provided below:

w	Wells and Piezometers Propesed For Abandonment or Retirement									
Shallow Wells	Shallow Wells/Piezometers									
P1	Screened within till aquitard outside the edge of the shallow aquifer.									
P4	Screened within till aquitard outside the edge of the shallow aquifer.									
G100	Screened within till aquitard outside the edge of the shallow aquifer.									
G100AB	Missing lock. Duplicate of G100.									
G101	Screened within till aquitard outside the edge of the shallow aquifer.									
G102	Screened within till aquitard outside the edge of the shallow aquifer.									
G103S	Screened within till aquitard outside the edge of the shallow aquifer.									
G104	Possible damaged well screen. Screened within till aquitard outside the edge of the shallow aquifer.									

Wells	and Piezometers Proposed For Abandonment or Retirement (cont'd)							
Shallow Wells	Piezometers							
G105 Screened within till aquitard outside the edge of the shallow aquifer.								
G105ABC	One inch diameter piezometers located in a single borehole. Replaced by G105.							
G106	Screened within till aquitard outside the edge of the shallow aquifer. Possib damaged well screen. Missing lock.							
G108	Duplicate of G107S and G121. Damaged lock.							
G109	Duplicate of G107S and G126.							
G110	Duplicate of G126 and G127.							
G111	Duplicate of G117 and G127.							
G112	Duplicate of G114 and G117.							
G113	Duplicate of G114.							
G114A	Missing lock. Cracked seal seal.							
G115S	Duplicate of G129.							
G116	Water level is not representative of groundwater flow conditions.							
G118D	Screened within till aquitard.							
G119	Screened within till aquitard outside the edge of the shallow aquifer.							
	Damaged lock.							
G124	Screened within till aquitard outside the edge of the shallow aquifer.							
G125	Screened within till aquitard outside the edge of the shallow aquifer.							
G128S	Duplicate of G117 and G123.							
G128I	Duplicate of G128S.							
G140S	Duplicate of G127.							
Deep Wells/Pie	ezometers							
G103D	Screened within till aquitard.							
G107D	Screened within till aquitard.							
G115D	Screened within till aquitard.							
G120S	Screened within till aquitard.							
G120D	Screened within till aquitard.							
G131DD	Duplicate of G131D.							
G132DD	Duplicate of G132D.							
G133DD	Duplicate of G133D.							
G136	Water level not representative of groundwater conditions. Well was pumped							
	dry during redevelopment activities indicating that the well is apparently							
	screened in crystalline rock with limited fractures. Rusted-off lid on							
	protective casing.							

The remaining wells in the groundwater monitoring network were also reviewed to identify those wells which should be included in the future quarterly groundwater monitoring program as detection monitoring wells, compliance monitoring wells, and water level wells. The resulting proposed monitoring program is summarized below.

Wells Proposed For The Quarterly	Groundwater Monitoring Program								
Detection Monitoring Wells									
Shallow Wells	Deep Wells								
G107S, G117, G123,	G128D, G135;								
G126, G127, G129	G140D, G141D								
Compliance Mo	onitoring Wells								
Shallow Wells	Deep Wells								
G122, G133S	G133D, G138, G139								
Water Le	Water Level Wells								
Shallow Wells	Deep Wells								
P2, P3,G114,	G131D, G132D,								
G118S, G121, G130S	G134, G137								

Monitoring wells G121 and G136 were initially proposed as a detection or compliance wells for the quarterly groundwater monitoring program. However, the well integrity survey identified that both these wells may have lost integrity due to broken or rusted-off protective casing lids. As well, a review indicated that water levels in well G136 were not representative of groundwater conditions, and that the well could be pumped dry during development. This suggests that G136 may be screened in crystalline rock with limited fractures. Therefore, wells G107S and G135, respectively, are proposed as alternative detection or compliance wells, with G121 still being proposed as a water level well.

The well integrity survey and/or well redevelopment has not been performed on 9 monitoring wells proposed for inclusion in the quarterly groundwater monitoring program (i.e., P2, P3, G130S, G131D, G132D, G134, and G137 proposed for water levels, and G107S and G135 proposed as detection monitoring wells). As well, during previous well redevelopment efforts, high and potentially inaccurate pH values were measured at well G121, and pH and specific conductivity could not be measured at G127 due to equipment malfunctions. Therefore, we recommend that the well integrity survey be conducted at 8 of these wells (i.e., P2, P3, G130S, G131D, G132D, G134, G135 and G137), and that 4 wells be re-developed for measurement of indicator parameters (i.e., G107S, G121, G127 and G135). We recommend these activities be scheduled for March 1997, with the first round of the quarterly monitoring program beginning immediately thereafter. Proposed details of the program are outlined in Appendix F.

Activity 5 - Gas Vent Evaluation

The objective of the landfill gas vent evaluation was to evaluate the condition of 30 existing landfill gas vents, and to measure gas quality, if possible. The evaluation consisted of measuring vent depths, leachate head levels and landfill gas composition, and observing the condition of the surface vent/riser. The evaluation was performed on October 21 and 22, 1996.

Gas measurements and monitoring data obtained during the gas vent evaluation are presented in Table 7, while leachate head elevation data for 1996 are presented in Table 8. These tables indicate that liquid depths measured in the vents ranged from 6.52 to 72.80 feet below the top of the vent casing pipe. These values may represent either actual leachate head levels or perched liquids. Landfill gas composition readings were measured at each vent's discharged with a portable gas monitoring instrument. Methane was detected at all but four of the gas vents at concentrations ranging from 1.0 % to 73.5%, by volume. Carbon dioxide levels ranged from zero to 43.0%, by volume, while oxygen concentrations ranged from zero to 20.2%, by volume. Gas pressures ranged from non-measurable to 29.1 inches of mercury. The evaluation also noted that gas vent DV-7 was obstructed at a depth of 87 feet.

The future of the existing gas vents will be discussed, in greater detail, as part of the future O&M plan for the leachate collection system (LCS). The draft O&M Plan is scheduled to be prepared during the construction of the LCS.

SUMMARY AND RECOMMENDATIONS

The predesign investigation activities completed to date have collected suitable information for future design submittals. However, the investigation did not collect all required information for determining the limits of waste, characterizing the landfill cap, and assessing landfill vegetation. Therefore, we recommend scheduling the following investigative activities for Spring 1997:

- Drilling an additional deep boring near TB68 to identify the limits of waste in this area,
- Collecting 16 additional undisturbed soil samples of the landfill cover for grain size distribution and permeability testing, to complete the characterization of the landfill cap,
- Performing the well integrity survey on 8 additional monitoring wells and piezometers, with 4 wells also being redeveloped, and
- Re-scheduling the Arboreal Impact Assessment.

We recommend implementing the first round of the groundwater monitoring program in spring 1997, as outlined in Appendix F. The review of the existing groundwater monitoring network identified wells and piezometers that would not provide meaningful longterm data or were duplicative. Therefore, we recommend abandoning or retiring 36 existing wells and piezometers.

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TABLE 1

Limits of Fill Borehole Data Blackwell Landfill NPL Site DuPage County, Illinois

24 1414144	1	ation nates (ft)	Ground Surface	Total Depth of	Surface of Waste
Borehole	Northing	Easting	Elevation (ft-MSL)	Borehole (ft)	Elevation (ft-MSL)
TB22	1298.87	-1291.16	728.40	8.0	
TB23	1278.09	-1277.30	728.23	8.0	721.23
TB24	1343.11	-1086.10	721.77	15.0	716.77
TB25	1326.23	-1082.61	722.58	5.0	718.08
TB26	1158.86	-1434.96	737.03	6.5	732.03
TB27	1194.17	-1467.46	745.15	15.0	732.03
TB28	978.04	-1444.40	745.60	10.0	736.10
TB29	972.75	-1465.84	749.61	15.0	735.11
TB30	965.34	-1478.39	748.30	14.5	733.11
TB31	1077.69	-1511.20	744.32	12.0	733.32
TB32	1078.37	-1538.10	742.25	13.0	755.52
TB33	1246.80	-1381.23	735.36	13.0	723.36
TB34	1260.63	-1391.67	733.12	12.0	723.30
TB35	1332.40	-1207.83	721.58	7.0	715.58
TB36	1352.76	-1204.93	719.45	8.0	713.36
TB37	1364.26	-889.36	723.98	13.0	
TB38	1344.81	-885.45	724.55	4.0	
TB39	1355.71	-994.69	723.54	12.0	
TB40	1333.03	-993.68	724.69	3.5	721.69
TB41	1292.47	-805.76	726.80	8.0	723.80
TB42	1283.16	-827.01	727.27	4.0	723.77
TB43	1184.35	-815.47	729.55	8.0	
ТВ43	1182.62	-839.17	728.37	5.0	723.87
TB45	1074.02	-834.27	730.72	8.0	725.72
TB46	1065.12	-815.38	731.33	8.0	
TB47	981.18	-914.33	731.00	8.0	723.50
TB48	956.88	-868.44	730.90	8.0	723.40
TB49	945.60	-848.88	730.59	8.0	
TB50	926.80	-861.29	731.35	8.0	
TB51	913.49	-882.50	731.76	7.0	725.26
TB52	884.99	-807.70	729.40	5.5	724.40
TB53	904.59	-794.69	728.42	8.5	
TB54	816.45	-730.10	734.51	9.0	
TB55	794.46	-737.94	733.08	8.0	725.58
TB56	764.42	-641.81	733.71	8.0	
TB57	741.71	-647.23	734.12	9.0	
TB58	720.55	-662.22	734.48	9.0	
TB59	721.88	-543.48	734.17	8.0	
TD60	706.51	-556.65	734.53	8.0	
TB61	678.27	-569.35	736.45	9.5	
TB62	659.78	-582.24	740.00	12.0	728.50
TB63	641.64	-474.73	735.70	8.0	
TB64	622.19	-486.79	739.27	15.0	726.27
TB65	595.97	-387.06	735.04	10.0	727.04
TB66	616.64	-378.25	734.35	8.0	

TABLE 1
Limits of Fill Borehole Data

Blackwell Landfill NPL Site
DuPage County, Illinois

	Loc	ation	Ground	Total Depth	Surface of
	Coordinates (ft)		Surface	of	Waste
Borehole	Northing Easting		Elevation (ft-MSL)	Borehole (ft)	Elevation (ft-MSL)
TB67	577.52	-283.65	731.69	8.0	
TB68	547.07	-300.28	734.58	10.0	
TB69	523.13	-312.24	737.40	12.0	
TB70	501.40	-319.33	739.29	16.0	
TB71	526.20	-200.78	730.56	10.0	
TB72	502.18	-218.36	734.39	17.0	
TB72A	502.18	-218.36	734.39	23.0	
TB73	471.32	-249.94	740.06	25.0	716.06
TB74	444.69	-161.74	734.65	23.0	713.65
TB75	416.69	-177.39	739.89	24.5	715.89
TB76	65.40	-255.38	729.09	13.0	
TB77	87.66	-246.79	732.40	11.0	721.90
TB78	50.10	-341.23	727.72	12.0	
TB79	73.32	-341.87	729.88	7.5	722.88
TB80	75.95	-136.19	729.07	11.0	
TB81	90.51	-143.48	730.10	9.0	
TB82	49.44	-450.54	726.00	13.0	
TB83	72.08	-450.92	727.55	7.5	720.55
TB84	53.17	-529.43	724.64	12.0	
TB85	77.14	-531.62	727.92	8.0	720.42

NOTE

^{-- =} Waste was not encountered in boring.

TABLE 2

Landfill Cover Thickness Blackwell Landfill NPL Site DuPage County, Illinois

	Loc	Ground Surface	Thickness	
Borehole	Coordi	nates (ft)	Elevation	of Cover
Location	Northing	Easting	(ft-MSL)	(ft)
EW01	859.50	-1295.71	753.45	0.6
EW01A	864.33	-1241.38	751.83	0.5
EW02	580.68	-1260.68	792.43	20
EW03	598.29	-954.78	769.75	9.5
EW04	329.97	-1307.69	836.93	63
EW05	333.41	-1037.02	809.23	28
EW06	224.30	-772.20	760.03	11
EW07	457.25	-612.85	772.94	9
EW08	328.74	-301.08	754.05	12.5
TB01	1181.10	-1358.30	735.50	2
TB01A	1215.03	-1265.30	730.73	>6
TB01B	1137.49	-1445.72	737.46	2.7*
TB02	1180.20	-957.60	729.20	3.3*
TB03	981.30	-1357.40	739.60	5.7
TB03A	1079.96	-1385.60	741.22	0.50
TB03B	987.82	-1248.37	744.86	2.50
TB03C	880.57	-1349.13	750.64	0.9
TB03D	931.55	-1421.62	748.12	2.6*
TB04	980.40	-1157.50	741.70	2*
TB05	978.60	-957.60	732.50	>6
TB06	780.60	-1357.90	756.00	2.4*
TB07	780.60	-958.50	759.10	2.2*
TB08	579.00	-957.60	750.60	3.5*
TB09	579.00	-957.60	770.30	>6
TB10	579.90	-756.80	753.10	>8
TB10A	579.90	-756.80	753.10	>7
TB11	580.80	-557.80	754.40	>6
TB12	580.80	-358.80	734.70	>10
TB13	378.60	-957.80	793.50	>8
TB14	381.00	-757.70	777.00	4*
TB15	381.90	-557.80	764.90	>10
TB16	381.90	-357.90	751.70	>6
TB17	180.60	-757.90	753.80	>4
TB18	180.30	-556.90	749.30	>6
TB19	181.20	-357.90	746.60	>3*
TB20	180.30	-158.10	740.00	>8
TB21	1318.93	-1301.24	729.64	OFA
TB22	1298,87	-1291.16	728.40	OFA
TB23	1278.09	-1277.30	728.23	2
TB24	1343.11	-1086.10	721.77	OFA
TB25	1326.23	-1082.61	722.58	4.5
TB26	1158.86	-1434.96	737.03	0
TB27	1194.17	-1467.46	745.15	OFA
TB28	978.04	-1444.40	745.60	1

Landfill Cover Thickness
Blackwell Landfill NPL Site
DuPage County, Illinois

TABLE 2

	Borehole	2	Location Coordinates (ft)		Thickness of Cover
	Location	Northing	Easting	Elevation (ft-MSL)	(ft)
	TB29	972.75	-1465.84	749.61	2.5
	TB30	965.34	-1403.84	749.01	ı
			i	744.32	>6.5
	TB31	1077.69	-1511.20	744.32	<2 OFA
Ì	TB32	1078.37	-1538.10		3*
	TB33	1246.80	-1381.23 -1391.67	735.36	- 1
	TB34	1260.63 1332.40		733.12	>2
	TB35		-1207.83 -1204.93	721.58	<2 OFA
	TB36	1352.76		719.45	OFA
	TB37	1364.26	-889.36	723.98	1
	TB38	1344.81	-885.45	724.55	4
	TB39	1355.71	-994.69	723.54	OFA
	TB40	1333.03	-993.68	724.69	3 3
	TB41	1292.47	-805.76	726.80	-
	TB42	1283.16	-827.01	727.27	3.50
	TB43	1184.35	-815.47	729.55	OFA
	TB44 TB45	1182.62	-839.17 -834.27	728.37	4.5
		1074.02	· ·	730.72	3.5 OFA
	TB46	1065.12	-815.38	731.33	3*
	TB47	981.18	-914.33	731.00	
	TB48	956.88	-868.44	730.90	4.5
Ì	TB49	945.60	-848.88	730.59	OFA
	TB50	926.80	-861.29	731.35	OFA
	TB51	913.49	-882.50	731.76	6.5
	TB52	884.99	-807.70	729.40	2
	TB53	904.59	-794.69	728.42	OFA
	TB54	816.45	-730.10	734.51	OFA
	TB55	794.46	-737.94	733.08	2.5*
	TB56	764.42	-641.81	733.71	OFA
	TB57	741.71	-647.23	734.12	OFA
	TB58	720.55	-662.22	734.48	>4
	TB59	721.88	-543.48	734.17	OFA
	TB60	706.51	-556.65	734.53	OFA
	TB61	678.27	-569.35	736.45	OFA
	TB62	659.78	-582.24	740.00	6*
	TB63	641.64	-474.73	735.70	OFA
	TB64	622.19	-486.79	739.27	7.5
	TB65	595.97	-387.06	735.04	4*
	TB66	616.64	-378.25	734.35	OFA
	TB67	577.52	-283.65	731.69	OFA
	TB68	547.07	-300.28	734.58	OFA
	TB69	523.13	-312.24	737.40	4.5*
	TB70	501.40	-319.33	739.29	>16
	TB71	526.20	-200.78	730.56	OFA
	TB72	502.18	-218.36	734.39	OFA

TABLE 2

Landfill Cover Thickness Blackwell Landfill NPL Site DuPage County, Illinois

	Loc	ation	Ground Surface	Thickness
Borehole	Coordii	nates (ft)	Elevation	of Cover
Location	Northing	Easting	(ft-MSL)	(ft)
TB72A	502.18	-218.36	734.39	OFA
TB73	471.32	-249.94	740.06	11*
TB74	444.69	-161.74	734.65	OFA
TB75	416.69	-177.39	739.89	14*
TB76	65.40	-255.38	729.09	OFA
TB77	87.66	-246.79	732.40	5.5*
TB78	50.10	-341.23	727.72	OFA
TB79	73.32	-341.87	729.88	3.5*
TB80	75.95	-136.19	729.07	OFA
TB81	90.51	-143.48	730.10	6.5*
TB82	49.44	-450.54	726.00	OFA
TB83	72.08	-450.92	727.55	4.5*
TB84	53.17	-529.43	724.64	OFA
TB85	77.14	-531.62	727.92	1.5*

Notes:

Datum is Mean Seal Level (MSL)

NA = Not Aplicable

OFA = Outside of Fill Area

^{* =} Additional low permeability material present above or below unit specified

Table 3
Summary of Grain Size Analysis Results
Blackwell Landfill NPL Site
DuPage County, Illinois

	Split-Spoon	Sample		· · · · · · · · · · · · · · · · · · ·		 	
Borehole	Sample	Depth	<u></u>		USCS		
Number	Number	(ft)	% Gravel	% Sand	% Silt	% Clay	Classification
TB1A	2	2-4	5	29	36	30	CL
TB2	2	2-4	2	11	40	47	CL
TB3D	5	8-10	15	33	39	13	ML
TB4	2	2-4	0	10	42	48	CL
TB5	2	2-4	1	6	56	37	CL
TB 6	4	6-8	11	26	35	28	CL
TB7	2	2-4	4	20	41	35	CL
TB8	3	4-6	0	19	30	51	CL
TB9	2	2-4	7	32	39	22	CL
TB10	2	2-4	23	14	28	35	CL
TB11	3	4-6	5	19	37	39	CL
TB12	4	6-8	5	20	42	33	CL
TB13	4	6-8	10	28	35	27	CL
TB14	7	12-14	9	36	38	17	ML
TB15	4	6-8	7	34	39	20	CL
TB16	2	2-4	1	15	27	57	CL
TB17	2	2-4	8	28	33	31	CL
TB18	2	2-4	16	18	36	30	CL
TB19	8	14-16	7	25	35	33	CL
TB20	4	6-8	8	31	44_	17	ML

Table 4
Summary of Laboratory Permeability Results
Blackwell Landfill NPL Site
DuPage County, Illinois

	Sample	Permeability
Sample	Depth	Test Result
Number	(Feet)	(cm/sec)
TB1A	3	4.60E-08
TB2	3.5	NP
TB2D	3	8.90E-05
TB4	4.5	NS
TB4B	12	8.10E-07
TB6	8	NP
TB6B	8.5	1.50E-07
TB8	6.5	2.20E-08
TB10	4.5	NP
TB10E	10	NP
TB12A	18	6.20E-08
TB13	8	2.00E-07
TB13C	5	3.00E-05
TB15	7.5	2.40E-08
TB15A	8	1.80E-07
TB18	4	6.50E-06
TB18B	7	4.00E-08
TB20	7	NP
TB20D	8	3.90E-07

NOTES:

NS = Sample did not saturate, maximum pressure attempted

NP = Not possible, disturbed, cracked, dessicated sample, or gravel interference

Table 5
Monitoring Well Evaluation
October 21 - 30, 1996
Blackwell Landfill NPL Site
Dupage County, Illinois

	Lucation Co	ordinates (ft)	Well	Screen	Screen	TOIC	Water	Water	Total	Aquifer	Locked	Protective	Material	Surface	Well	Kinking	Additional
Well			Diameter	Length	Туре	Elevation	Level	Elevation	Depth	Туре	and	Casing	Between	Seal	Casing	or	Comments
Number	Northing	Easting	(inches)	(ft)		(ft-MSL)	(ft)	(ft-MSL)	(n)		Secure		Casings	Defects	Vent Hole	Obstructions	
G100			4		PVC		14.80		18.00		Yes	O.K.	None	Weak ⁽²⁾	Yes	None	Dedicated Bailer - Bottom 2 ft coated black
G100A			2		PVC	}	12.65		17.80	į	No	О.К.	None	Weak(2)	Yes	None	No Bailer
G100B			2		PVC		13.00		35.50		No	О.К.	None	Weak(2)	Yes	None	No Bailer
G101			4		PVC		5.70		13.20		Yes	О.К.	None	None	Yes	1	Dedicated Bailer
G102			4		PVC)	19.55		26.95	1	Yes	O.K.	None	None	Yes	None	Dedicated Bailer
G103S			4		PVC	}	15.44		44.20		Yes	О.К.	None	None	Yes	None	Dedicated Bailer - Hornets nest in cover (4)
G103D	Į l		4		LVC	lli	18.75		64.30	1	Yes	O.K.	None	None	Yes	None	No bailer
G104			4		PVC		21.40		22.30	ŀ	Yes	О.К.	None	None	Yes	None	Dedicated Bailer -2 ft coated black with sand
G105	1		4		PVC	f I	22.10		24.00		Yes	O.K.	None	None	Yes	None	Dedicated Bailer
G105A			3		PVC	} }	21.90		24.30		Yes	O.K.	Sand	None	Yes	None	All 3 wells in one Protective Casing
G105B	1		3		PVC	li	22.12		39.30	ŀ	Yes	O.K.	Sand	None	Yes	None	All 3 wells in one Protective Casing
G105C			3		PVC		24.10		63.00	1	Yes	O.K.	Sand	None	Yes	None	All 3 wells in one Protective Casing
G106			4		PVC	1	12.85		14.40	İ	No	O.K.	None	None	Yes	None	Dedicated Bailer - filter pack sand in well
G1075	1	1	4		PVC	i i	15.12		40.40		Yes	O.K.	None	None	Yes	None	Dedicated Bailer
G107D			4 (PVC	!!	15.54		49.00		Yes	О.К.	None	None	Yes	None	Dedicated Bailer
G108	l		4		PVC	ĺ	7.76		14.00		No ⁽¹⁾	O.K.	None	None	Yes	None	Dedicated Bailer
G109			4		PVC		13.50		21.20		Yes	O.K.	None	None	Yes		Dedicated Bailer
GHO		i	4		PVC	1	15.05		16.90		Yes	O.K.	None	None	Yes		Dedicated Bailer - Bottom 2 ft coated black
G111			4		PVC		16.40		23.00	i	Yes	O.K.	None	None	Yes	1	Dedicated Bailer
G112			4		PVC	1	15.70		21.00		Yes	O.K.	None	None	Yes		Dedicated Bailer
G113			4		PVC	1	15.18		21.30	1	Yes	O.K.	None	None	Yes		Dedicated Bailer
G114			4		PVC	i	16.50		30.00		Yes	O.K.	None	None	Yes		Dedicated Bailer
G114A	l		2		PVC		15.80		20.70		No	O.K.	None	Cracked	Yes	•	No Bailer
G115S			4		PVC PVC		14.85		20.10 50.25		Yes Yes	O.K. O.K.	None	None	Yes Yes		Dedicated Bailer
G115D			4			i	14.95			į			None	None	i		Dedicated Bailer
G116			4		PVC		15.78	con 16	47.00	G1 : 10	Yes	O.K.	None	None	Yes		Dedicated Bailer
G-117	-296.30	-1629.70	4	10.0	PVC	707.37	14.92	692.45	30.00	Glacial Outw.	Yes Yes	O.K.	None	None	Yes		No Bailer
G118A			1		PVC		9.12		18.10			O.K.	None	None	Yes		No Bailer - Covered by manhole
G118S			4		PVC	1	17.90		22.90		Yes	O.K.	None	Weak ⁽²⁾	Yes		Dedicated Bailer
G118D			4		PVC		18.45		9.12		Yes	O.K.	None	None	Yes		Dedicated Bailer
G119A			4		PVC		15.90		20.10		No ⁽¹⁾	O.K.	None	None	Yes	None	Dedicated Bailer
G120S			4		PVC	i	33.40		60.20		Yes	O.K.	None	None	Yes		Dedicated Bailer
G120D			4		PVC		36.85		86.50		Yes	О.К.	None	None	Yes		Dedicated Bailer
G-121	-568.10	-722.30	4	5.0	PVC	703.69	11.62	692.07	20.60	Glacial Outw.	No ⁽³⁾	O.K.	None	None	Yes	None	No Bailer
G-122	-689.70	-1563.40	4	5 .0	PVC	706,44	14.44	692.00	25.60	Glacial Outw.	Yes	O.K.	None	None	Yes		Dedicated Bailer
G-123	-137.90	-1891.80	4	5.0	PVC	707.69	15.30	692.39	22.00	Glacial Outw.	Yes	O.K.	None	None	Yes		No Bailer - Homets nest in well (4)
G-126	-256.39	-1117.51	4	10.0	PVC	704.45	12.36	692.09	19.30	Glacial Outw.	Yes	O.K.	None	None	Yes		No Bailer
G-127	-304,79	-1404.97	4	10.0	PVC	706.56	14.60	691.96	20.90	Glacial Outw.	Yes	O.K.	None	None	Yes		No Bailer
G-128D	-188,07	-1716.33	4	10.0	PVC	707.37	15.49	691.88	56.40	Dol. Bedrock	Yes	O.K.	None	Weak(2)	Yes	None	No Bailer
G-129	169.58	-2035.18	4	10.0	PVC	702.56	9.90	692.66	19.20	Glacial Outw.	Yes	O.K.	None	None	Yes		No Bailer
G-1335	-614,50	-2089.70	4	10.0	PVC	707.56	15.74	691.82	23.00	Glacial Outw.	Yes	O.K.	None	None	Yes	None	No Bailer
G-133D	-626.90	-2077.40	4	None	None	707.84	16.20	691.64	54.00	Dol. Bedrock	Yes	O.K.	None	None	Yes	None	No Bailer
G-136	790.10	-1746.90	4	None	None	710.23	17.42	692.81	102.80	Dol. Bedrock	No ⁽³⁾	O.K.	None	None	Yes	None	No Bailer
G-138	-254.50	-249.20	4	10	PVC	708.69	16.83	691.86	56.20	Dol. Bedrock	Yes	O.K.	None	None	Yes	None	No Bailer
G-139	540.30	-512.80	4	10	PVC	702.06	10.15	691.91	57.50	Dol. Bedrock	Yes	O.K.	None	None	Yes		No Bailer
G-140D	413445.00	1246728.00	2	10.6	SS	705.55	13.66	691.89	60.70	Dol. Bedrock	Yes	O.K.	Sand	None	Yes		No Bailer
G-141D	413456.00	1246740.00	2	10.3	SS	708.15	16.41	691.74	63.80	Dol. Bedrock	Yes	O.K.	Sand	None	Yes	None	No Bailer

Notes:

- (1) Existing lock will not lock
- (2) Slight heave of surface seal
- (3) Protective casing hinge broken
- (4) Insect spray used to remove homet nests.
- SS = Stainless steel well screen
- PVC= Poly vinylchloride well screen
- Elevation (msl) = Mean Sea Level

Table 6 Monitoring Well Redevelopment Detection and Compliance Monitoring Wells October 21 - 30, 1996 Blackwell Landfill NPL Site Dupage County, Illinois

DETECTION MONITORING WELLS

		We	ll Developr	nent Field Pa			
	Well	Volume		Specific	Temp.	D.O.	Turbidity
Well	Volume	Purged	pН	Conduct.	Degree C	(mg/l)	(NTU)
Number				(umhos/cm)			<u> </u>
G-117	24.4 Gal.	240 Gal.	7.54	574	12.50	2.13	0.02
G-121	16.4 Gal.	110 Gal.	12.6	545	14.00	1.60	8.90
G-123	12.3 Gal.	85 Gal.	9.51	601	14.00	2.12	2.20
G-126	12.7 Gal.	70 Gal.	6.79	1120	14.00	1.48	Clear
G-127	11.5 Gal.	70 Gal.	**	**	13.10	1.60	2.80
G-128D	40.6 Gal	240 Gal.	8.76	730	12.40	2.04	10.10
G-129	17.90 Gal	120 Gal.	7.35	800	12.30	2.86	56*
G-136	62.8 Gal.	82 Gal.	9.80	540	11.60	1.77	43*
G-140 D	11 Gal.	60 Gal.	6.95	950	11.10	1.20	Clear
G-141D	16 Gal.	·85 Gal.	8.44	684	12.20	1.14	0.19

COMPLIANCE MONITORING WELLS

Well Development Field Parameters										
Well Number	Well Volume	Volume Purged	pН	Specific Conduct. (umhos/cm)	Temp. Degree C	D.O. (mg/l)	Turbidity (NTU)			
G-122	20.4 Gal.	120 Gal.	6.90	835	13.30	1.20	Clear			
G-133S	13.3 Gal.	75 Gal.	7.10	1080	12.90	1.50	Clear			
G-133D	38.5 Gal.	210 Gal.	7.00	875	12.00	0.70	Clear			
G-138	39.5 Gal.	175 Gal.	7.05	1025	11.20	2.60	2.46			
G-139	44.6 Gal.	200 Gal.	7.55	717	10.80	4.40	3.98			

Notes:

Monitoring Wells G-133D and G-136 do not have well screens.

PVC riser pipe is set into bedrock with an open borehole in bedrock ffor well screen.

D.O. = Dissolved Oxygen

* = Turbidity nits (NTU) 10 times scale factor

** = Equipme at malfunction

Table 7 Gas Vent Evaluation Blackwell Landfill NPL Site October 21 and 22, 1996 Dupage County, Illinois

Vent	TOC	Initial (GS)	Measured	Depth to	Liquid	Gas Readings		Pressure	Notes/Comments	
Number			Well Depth	Liquid	Level	% O2	% CH4	% CO2	Inches Hg	
, , , , , , , , , , , , , , , , , , , ,	(ft-MSL)	(ft)	(ft)	(ft)	(ft-MSL)					
SV-1	740.77	18.5	16.00	6.52	734.25	19,6	1.1	0.2	NC	
SV-2	761.80	52.5	53.25	42.40	719.40	0.0	65.0	36.3	NC	
SV-3	774.66	15.0	14.95	12.16	722.50	18.0	7.8	2.4	NC	
SV-4	744.06	27.0	27.15	NL	Dry	0.2	61.1	41.9	NC	No leachate measured in well
SV-5	728.61	28.0	27.00	12.75	715.86	0.0	58.5	43.0	NC	
SV-6	762.57	48.0	45.70	29.80	732.77	3.5	50.5	30.5	NC	
SV-7	783.44	63.0	64.70	53.60	729.84	0.0	64.2	36.6	NC	
SV-8	726.06	23.0	25.20	15.20	710.86	0.0	63.6	40.0	NC	
SV-9	750.66	48.0	50.00	39.55	711.11	0.0	63.2	40.9	NC	
SV-10	753.96	63.0	64.50	61.10	692.86	0.0	66.4	34.1	NC	
SV-11	810.43	95.0	91.40	72.80	737.63	0.0	61.9	42.4	NC	
SV-12	827.37	87.0	83.80	65.20	762.17	3.1	47.2	24.7	NC	
DV-I	**	125.0	NM	NM	NM	0.0	63.9	34.8	NC	Couldn't open flushmount. Gas readings from RV19
DV-2	756.34	24.0	24.40	8.75	747.59	20.0	0.0	0.0	NC	
DV-3	750.75	42.5	36.75	15.48	735.27	20.2	0.0	0.1	NC	
DV-4	725.61	27.5	27.10	24.80	700.81	16.8	1.0	2.6	NC	
DV-5	721.92	28.5	29.00	25.37	696.55	0.0	64.4	35.5	NC	
DV-6	779.96	74.0	68.25	55.20	724.76	0.0	64.5	34.5	NC_	
DV-7	833.94	130.0	86.90	NL	NL	0.0	63.8	37.0	NC	Tape wouldn't go past measured depth
DV-8	732.59	26.0	27.60	10.20	722.39	11.4	25.2	19.1	NC	
DV-9	726.97	21.0	22.40	11.78	715.19	9.0	33.5	24.0	NC	
DV-10	768.61	71.0	67.40	32.64	735.97	9.2	32.1	21.6	NC	
DV-11	756.72	36.5	34.75	9.43	747.29	20.1	0.0	0.0	NC	
DV-12	731.25	36.6	38.20	30.87	700.38	20.2	0.0	0.1	NC	
DV-13	748.60	53.0	53.60	35.97	712.63	0.0	65.9	37.0	NC	
DA-14	740.80	33.0	33.10	24.10	716.70	19.6	2.1	1.0	NC	
DV-15	738.96	NA	43.00	40.35	698.61	0.0	63.2	32.6	NC	
DV-16	735.54	NA	34.00	NL	Dry	0.0	63.9	38.9	NC	
DV-17	731.89	NA	37.20	23.73	708.16	0.0	61.9	39.2 36.0	NC NC	
DV-18	773.34	NA .	54.20	45.40	727.94	0.0	64.0			
EW-I	751.64	45.0	43.85	36.80	714.84	0.5	63.4	39.5	28.7	Initial well depths are based on well construction data, and are
EW-1A	750.40	45.0	42.50	36.85	713.55	0.0	64.0	25.0	28.7	measured from ground surface. measured well depths and liquid levels are taken
EW-2	791.33	85.0	81.50	71.00	720.33	0.0	70.8	27.5	28.7	from the current TOC elevation which is below ground surface, within the vaults.
EW-3	767.58	64.0	62.40	37.40	730.18	0.3	63.7	39.3	28.8	The TOC elevation is the current, below ground, elevation.
EW-4	834.84	130.0				0.0	65.3	37.4	28.7	1
EW-5	807.61	104.0	89.90	48.50	759.11	0.0	69.0	19.5	28.8	4
EW-6	758.81	64.5	54.60	38.80	720.01	2.5	56.6	31.6	28.9	1
EW-7	771.37	54.5	63.10	47.60	723.77	0.1	63.4	40.5	29.1	
EW-8	753.69	49.0	43.70	7.50	746.19	2.5	73.5	10.0	28.9	<u> </u>

Notes

NL = No liquid measured

NA = Information not available

NM = Not measured

** = Information could not be obtained from well. Tape sticks to side of well.

NC = No Data Collected

Initial (GS) = Measured well depth to ground surface during well construction

% O2 = Percentage of oxygen

% CH4 = Percentage of methane

% CO2 = Percentage of carbon dioxide

DAP\ACC\TJK

mduxJ 3920\0056\TMTABL6 XLS

Table 8
Leachate Elevation Data
Blackwell Landfill NPL Site
DuPage County, Illinois

	Elevation	Loca	ation	Liquid	Leachate	Liquid	Leachate	Liquid	Leachate
Leachate	Elevation	Coordin	ates (ft)	Level	Elevation	Level	Elevation	Level	Elevation
Vent	(TOIC)			6/21/96	6/21/96	7/213/96	7/23/96	10/21/96	10/21/96
Number	(ft-MSL)	East	North	(ft)	(ft-MSL)	(ft)	(ft-MSL)	(ft)	(ft-MSL)
SV-1	740.77	541850	882210	5.75	735.02	5.70	735.07	6.52	734.25
SV-2	761.80	542320	881350	41.75	720.05	43.90	717.90	42.40	719.40
SV-3	734.66	542790	881200	5.95	728.71	9.40	725.26	12.16	722.50
SV-4	744.06	542080	882000	18.35	725.71	21.20	722.86	NL	_
SV-5	728.61	542160	882390	9.46	719.15	9.90	718.71	12.75	715.86
SV-6	762.57	542160	881710	26.28	736.29	27.20	735.37	29.80	732.77
SV-7	783.44	542000	881680	52.30	731.14	52.70	730.74	53.60	729.84
SV-8	726.06	541400	881560	15.35	710.71	16.00	710.06	15.20	710.86
SV-9	750.66	541570	881620	39.80	710.86	40.40	710.26	39.55	711.11
SV-10	753.96	541870	881340	60.50	693.46	59.40	694.56	61.10	692.86
SV-11	810.43	541770	881600	72.40	738.03	73.40	737.03	72.80	737.63
SV-12	827.37	541880	881350	65.60	761.77	66.30	761.07	65.20	762.17
DV-1	NA	NA	NA	NM	NM	NM	NM	NM	NM
DV-2	756.34	542770	881470	4.05	752.29	4.80	751.54	8.75	747.59
DV-3	750.75	541700	882080	14.70	736.05	14.70	736.05	15.48	735.27
DV-4	725.61	542300	881170	23.71	701.90	20.70	704.91	24.80	700.81
DV-5	721.92	541450	881140	26.10	695.82	25.80	696.12	25.37	696.55
DV-6	779.96	542300	881510	49.13	730.83	49.90	730.06	55.20	724.76
DV-7	833.94	541750	881480	86.50	747.44	87.10	746.84	NL	-
DV-8	732.59	542180	882270	9.05	723.54	9.70	722.89	10.20	722.39
DV-9	726.97	542150	882470	7.85	719.12	6.90	720.07	11.78	715.19
DV-10	768.61	541770	881810	29.60	739.01	29.90	738.71	32.64	735.97
DV-11	756.72	542770	881420	6.40	750.32	6.00	750.72	9.43	747.29
DV-12	731.25	542960	881190	30.58	700.67	26.60	704.65	30.87	700.38
DV-13	748.60	542490	881280	35.75	712.85	36.90	711.70	35.97	712.63
DV-14	740.80	542680	881680	NM	NM	20.70	720.10	24.10	716.70
DV-15	738.96	542070	881130	NM	NM	38.20	700.76	40.35	698.61
DV-16	735.54	541670	881040	NM	NM ·	34.70	700.84	NL	l –
DV-17	731.89	541400	881330	NM	NM	24.70	707.19	23.73	708.16
DV-18	773.34	542220	881640	NM	NM	NM	NM	45.40	727.94
EW-1	756.65	541740	882020	42.20	714.45	42.40	714.25	36.80	714.84
EW-1A	754.83	541850	882050	42.30	712.53	42.30	712.53	36.85	713.55
EW-2	795.43	541770	881720	77.70	717.73	76.30	719.13	71.00	720.33
EW-3	772.95	542125	881730	44.20	728.75	41.30	731.65	37.40	730.18
EW-4	839.68	541740	881440	126.20	713.48	126.40	713.28	-	-
EW-5	812.13	542030	881460	53.30	758.83	52.90	759.23	48.50	759.11
EW-6	763.00	542280	881350	46.70	716.30	45.40	717.60	38.80	720.01
EW-7	776.44	542470	881560	52.70	723.74	53.50	722.94	47.60	723.77
EW-8	756.85	542770	881450	6.00	750.85	6.40	750.45	7.50	746.19

Notes:

TOIC = Top of inner casing

NA = Information not available

NM = Not measured

NL = No leachate in well

Elevation datum is Mean Sea Level (MSL)

Leachate elevation data for 10/21/96 reflects current TOIC elevation of extraction wells, which are below ground surface elevation, within extraction well vaults.



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BORING LOGS - EXTENT OF FILL

MONTGOMERY WATSON



While Drilling

Depth to Water

Depth to Cave in

Time After Drilling

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location Du

DuPage County, Illinois

Boring No.

TB21 3920.0041

Job No.
Sheet

1 of 1

Surface Elevation

729.6

Northing:

10/10/96 End

Drill Method 2 1/4" I.D. HSA

Chief

Editor

TSC

DAP

10/10/96

Bob

TJK

J\3920\aint\BLACK_ID_CHICAGO

Rig Mobile

B-57

ft. Start

Driller

Logger

1318.9 -1301.2

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu PID Rec. Mois Ν Depth and Remarks (qa) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Fine to Coarse SAND, Little Fine to Coarse Gravel (SP) Color Changing to Brown Color Changing to Light Brown 5 Increasing Gravel from 5 to 8 ft End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings. 10-WATER LEVEL OBSERVATIONS **GENERAL NOTES**

ft. Upon Completion of Drilling

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

MONTGOMERY WATSON



While Drilling Time After Drilling

Depth to Water

Depth to Cave in

transition may be gradual

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

DuPage County, Illinois Location

Boring No.

TB22 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

728.4

Northing: 1298.9 -1291.2

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-N PID Depth and Remarks (qa) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Fine to Coarse SAND, Little Fine to Coarse Gravel (SP) Color Changing to Brown Color Changing to Light Brown 5 Increasing Gravel Gray, Lean CLAY (CL) End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings. 10 WATER LEVEL OBSERVATIONS **GENERAL NOTES**

ft. Start

Driller

Logger

10/10/96 End

Drill Method 2 1/4" I.D. SSA

Chief

Editor

TSC

DAP

10/10/96

Bob

TJK

13920 gint BLACK ID: CHICAGO

Rig Mobile

B-57

ft. Upon Completion of Drilling 🛂

The stratification lines represent the approximate boundary between soil types and the

MONTGOMERY WATSON



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB23

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

728.2

Northing:

1278.1

Easting: -1277.3

				2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000					
	AM			VISUAL CLASSIFICATION		PROPE	RTIES		
1 141	Mois-		Depth	and Remarks	qu (qa)	PID	Daw1		
No. E (in.)		Value		Dark Brown to Brown, Fine to Coarse SAND (SP) Gray, Lean CLAY (CL) MUNICIPAL WASTE; Some Gravel Waste, Small Pieces of Wood and Glass End of Boring at 8.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.	(qa) (tsf)	(ppm)	Remarks		
			-		!				
		W	15- ATE	R LEVEL OBSERVATIONS GE	NERAI	L NOTE	S		
While D	rillina		-		/96 End	10/10/96			
While D Time Af Depth to Depth to	ter Dr Wate Cave	illing r in		Driller TSC Logger DAI Drill Method	C Chief	Bob r TJK	Rig Mobile B-57		
The stra	tification	n lines	represen	the approximate boundary between soil types and the		1/2020\mint\81.4CK	10 CHICAGO		

MONTGOMERY WATSON



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

The stratification lines represent the approximate boundary between soil types and the

transition may be gradual

DuPage County, Illinois

Boring No.

TB24

Job No. Sheet

3920.0041 1 of 2

Surface Elevation

721.8

Northing:

1343.1

-1086.1

J\3920\quat\BLACK_ID: CHICAGO

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION PID Rec. Mois-Ν Depth and Remarks (qa) (tsf) No. ₽ (ppm) (in.) ture Value (ft.) Remarks Gray, Silty CLAY, Some Gravel (CL-ML) Gray, Silty CLAY (CL-ML) Gray, Lean CLAY (CL) GENERAL NOTES WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling 10/10/96 End 10/10/96 Start Rig Mobile Time After Drilling Bob Driller **TSC** Chief DAP **TJK** B-57 Depth to Water Logger **Editor** Drill Method 2 1/4" I.D. HSA Depth to Cave in

MONTGOMERY WATSON



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB24

Job No.

3920.0041 2 of 2

Sheet 2 of Surface Elevation

721.8

Northing:

1343.1

Easting:

-1086.1

					' 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500(Easting: _	-108	86.1	
_		S	AM	PLE		VISUAL CLASSIFICATION	SOIL	PROF	PERTIES
No.	TASK.	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
		•			-	End of Boring at 15.0 ft			
					-	Borehole Backfilled with Drill Cuttings.			
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MONTGOMERY WATSON



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB25

Job No. Sheet 3920.0041 1 of 1

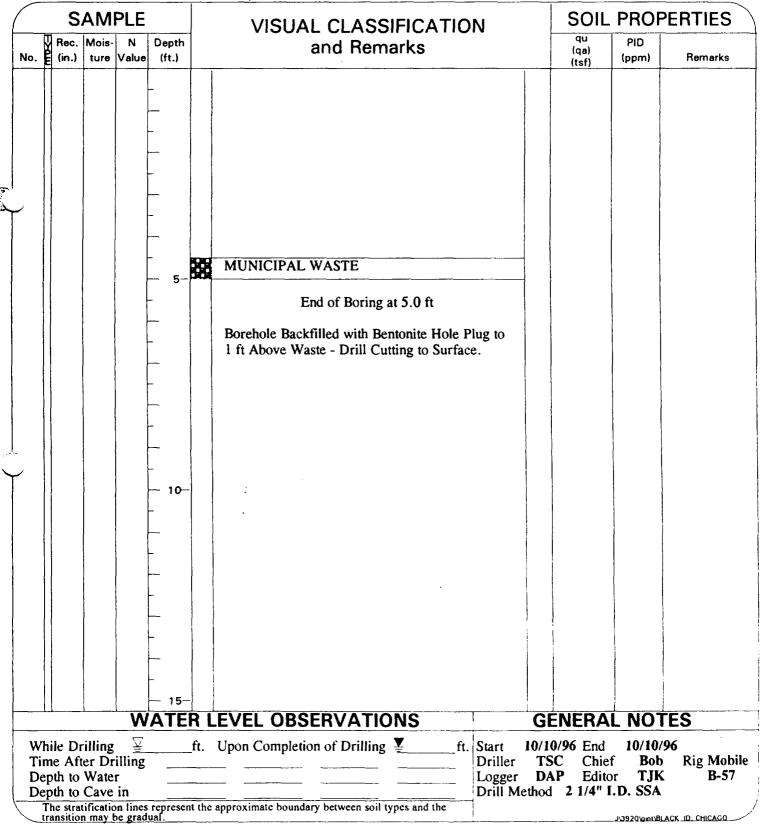
Surface Elevation

722.6

Northing:

1326.2 -1082.6

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000



MONTGOMERY WATSON



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB26

Job No.

3920.0041

Sheet

Surface Elevation Northing: 1158.9

737.0

Fasting:

-1435.0

1 of 1

	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	0 -1433.0
SAMPLE	VISUAL CLASSIFICATION	SOIL PROPERTIES
No. E (in.) ture Value (ft.)	and Hemains	qu PID (qa) (ppm) Remarks
- 5-	Light Brown to Brown, Fine to Coarse SAND and GRAVEL (SP/GP) MUNICIPAL WASTE; Olive Gray CLAY, Waste Mixed with Clay End of Boring at 6.5 ft Borehole Backfilled with Drill Cuttings.	(tsf) (ppm) Hemarks
	R LEVEL OBSERVATIONS G	ENERAL NOTES
While Drilling Time After Drilling Depth to Water	Driller TS Logger DA	AP Editor TJK B-57
Depth to Cave in The stratification lines represe	Int the approximate boundary between soil types and the	1 2 1/4" I.D. HSA
transition may be gradual.	l	J\3920\qmt\BLACK_ID: CHICAGO

MONTGOMERY WATSON



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB27 3920.0041

Job No. Sheet

1 of 2

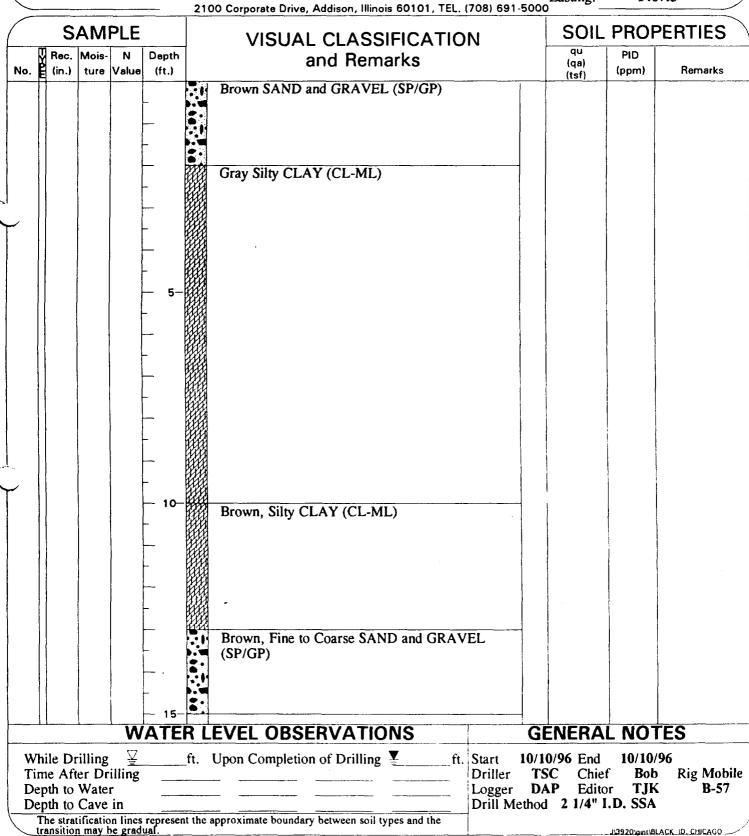
Surface Elevation

745.2

Northing:

1194.2

Easting: -1467.5





LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. Job No. TB27 3920.0041

Sheet

2 of 2

Surface Elevation

745.2

Northing:

1194.2

Easting:

-1467.5

Ì	\geq	_					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000						
6		To the			PLE	·		VISUAL CLASSIFICATION		·	PROPERTIES		
N	lo.		Rec. (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks		
						_		End of Boring at 15.0 ft					
						-		Borehole Backfilled with Drill Cuttings.					
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transition may be gradual.

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB28

Job No. Sheet

1 of 1

Surface Elevation
Northing: 978

745.6

Northing:

978.0 -1444.4

J\3920\gint\BL\CK ID: CHICAGO

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION PID Rec. Mois-Depth and Remarks (qa) Value No. (in.) ture (ft.) (ppm) Remarks (tsf) Dark Brown, Clayey TOPSOIL Brown, Fine to Coarse SAND and GRAVEL, Cobbles (SP/GP) Brown GRAVEL (GP) MUNICIPAL WASTE; Gray CLAY Intermixed with Waste; Paper, Plastic, Small Pieces of Cloth End of Boring at 10.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. **GENERAL NOTES** WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling ft. Start 10/10/96 End 10/10/96 Rig Mobile Time After Drilling Chief **Bob** Driller TSC Depth to Water DAP TJK B-57 Logger **Editor** Depth to Cave in Drill Method 2 1/4" I.D. HSA The stratification lines represent the approximate boundary between soil types and the



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB29 3920.0041

Job No.

1 of 2

Sheet Surface Elevation

Northing:

749.6 972.8

-1465.8

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	S	AM	PLE		VISUAL CLASSIFICATION	SOIL PROPERTIES				
No.		Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks		
		ture	Value	- 10-	Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Clayey SAND and GRAVEL (SC/GC) GRAVEL and Cobbles Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Brown, Silty CLAY (CL-ML)	(qa) (tsf)	(ppm)	Remarks		
w	hile D	rilling		- - - 15- 'ATE		ENERAL 0/96 End	NOT			
Ti De	me Af	ter Di Wate	rilling r		Driller TS	SC Chief AP Editor	Bob TJK	Rig Mobile		
(pth to The stra	tificati	on lines	represe	Drill Method at the approximate boundary between soil types and the	i 2 1/4" I.	D. SSA	·		
	transitio	n may	be grad	luaf.			1/3920\gint\81	ACK ID: CHICAGO		



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB29

Job No.

3920.0041 2 of 2

Sheet 2 o
Surface Elevation

749.6

Northing: Easting:

972.8 -1465.8

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000											
				PLE		VISUAL CLASSIFICATION				PERTIES		
No.	E A	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	_	qu (qa) (tsf)	PID (ppm)	Remarks		
						End of Boring at 15.0 ft						
					_	Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.		!				
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LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB30

Job No.

3920.0041

Sheet

1 of 2

Surface Elevation

748.3

Northing:

965.3 -1478.4

		W	V		1	20 Company Drive Addison Wineie 60101 TEL /	709) 601 6000	Easting:	-147	8.4	
		SAM	PI F			OO Corporate Drive, Addison, Illinois 60101, TEL. (7			PROF	PERTIES	\
		. Mois		Depth	+	VISUAL CLASSIFICATION	N	qu	PID		
No.	W .		Value			and Remarks		(qa) (tsf)	(ppm)	Remarks	
No.	W .					Brown, Fine to Coarse SAND and GRAVE (SP/GP) Brown, Silty CLAY (CL-ML)	EL	(qa) (tsf)		Remarks	
T	Vhile I ime A Depth to Depth to	fter Di Wate Cave	g <u>¥</u> rilling er : in		R L		······································	P Editor	10/10/9 Bob r TJK		le
	The str	atificati	on lines	represe	nt the	approximate boundary between soil types and the		•	1/30 30\minst9+	ACK ID-CHICAGO	



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

DuPage County, Illinois Location

Boring No.

TB30

Job No. Sheet

3920.0041 2 of 2

Surface Elevation

748.3

Northing:

965.3 -1478.4

				Location DuPage County, Illinois 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-509						ĭ	Easting: -1478.4				
 Rec	Mois		Depth	VISUAL CLASSIFICATION and Remarks							SOIL PROPERTIES				
 E (in.)	ture	Value	(ft.)	 				g at 14.5			+ -	(tsf)	(ppm)	Remarks	
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			-	Bo	rehole E	Backfill	led with	Drill Cut	tings.						
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LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB31

Job No.

3920.0041

Sheet Surface Elevation

1 of 1

744.3

Northing:

1077.7

Easting: -1511.2

SAMPLE	VISUAL CLASSIFICATION	SOIL	PROPERTIES
<u> </u>		qu	PID
No. E (in.) Mois- N Depth (ft.)	Gray Brown, Silty CLAY, Some Gravel (CL-ML) Light Brown to Brown, Fine to Coarse SAND and GRAVEL (SP/GP)	qu (qa) (tsf)	PID (ppm) Remarks
- 10-	MUNICIPAL WASTE; Gray Clay Mixed with Paper, Plastic, Cloth End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.		
WATE	R LEVEL OBSERVATIONS GE	NERAL	NOTES
Time After Drilling Depth to Water Depth to Cave in	ft. Upon Completion of Drilling ft. Start 10/10 Driller TSC Logger DA Drill Method	P Editor 2 1/4" I.	TJK B-57



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

The stratification lines represent the approximate boundary between soil types and the

transition may be gradual

Boring No.

TB32

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

742.3

Northing:

1078.4 -1538.1

J/3920\unit\BLACK_ID; CHICAGO

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION PID Rec. Mois-Ν Depth and Remarks (qa)No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Black, Organic, Silty CLAY (CL-ML) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray Brown, Silty CLAY (CL-ML) Dark Gray to Black, Silty CLAY (CL-ML) End of Boring at 13.0 ft Borehole Backfilled with Drill Cuttings. 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS ft. Upon Completion of Drilling ft. Start 10/10/96 End 10/10/96 While Drilling Rig Mobile Time After Drilling Chief Bob Driller TSC **TJK** B-57 DAP Editor Depth to Water Drill Method 2 1/4" I.D. HSA Depth to Cave in



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

DuPage County, Illinois

Boring No.

TB33

Job No.

3920.0041

Sheet

1 of 1

Northing:

Surface Elevation

735.4

Northing:

1246.8

J\3920\qint\BLACK_ID; CHICAGO

Easting:

-1381.2

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu PID Rec. Mois Ν Depth and Remarks (qa) (in.) ture Value (ft.) (ppm) Remarks No. (tsf) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray, Silty CLAY (CL-ML) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray Brown, Silty CLAY (CL-ML) MUNICIPAL WASTE; Paper, Plastic, Glass, Metal End of Boring at 13.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS **GENERAL NOTES** 10/10/96 10/10/96 End While Drilling ft. Upon Completion of Drilling \(\frac{1}{2} \) ft. | Start Time After Drilling Driller **TSC** Chief Bob Rig Mobile Depth to Water Logger DAP Editor **TJK** B-57 Drill Method 2 1/4" I.D. SSA Depth to Cave in



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB34

Job No. Sheet

3920.0041 1 of 1

Surface Elevation

733.1

Northing: Easting:

1260.6 -1391.7

	S	ΑM	PLE		VISUAL CLASSIFICATION	SOIL PROPERTIES				
		Mois-	1	Depth	and Remarks	up (ap)		PID		
No.	(in.)	ture	Value	(ft.)		(tsf)		(ppm)	Remarks	
		}		-	Dark Brown, Silty CLAY (CL-ML)					
					Brown, Fine to Coarse SAND and GRAVEL (SP/GP)					
				_	(51751)					
			•							
					Gray, Silty CLAY, Some Gravel (CL-ML)			-		
								į		
\								1		
				_	Brown, Fine to Coarse SAND and GRAVEL			1		
				_	(SP/GP)]		
				5-	<u>-0</u>					
				-						
]		_						
		Ì		-						
				-	Light Brown GRAVEL (GP)					
				-						
				-						
				-	○. ■					
إ				-						
ٻ				-						
				10-	Soft, Gray CLAY (CL)		ì			
				-	Soit, Gray CEAT (CE)		1	}		
				-						
				}		,				
				<u>_</u>						
1				_	End of Boring at 12.0 ft					
				_	Line of Borning at 12,0 it					
					Borehole Backfilled with Drill Cuttings.					
				15-						
-	Ц	1	W	1	R LEVEL OBSERVATIONS GE	NER	AL	NOT	ES	
W	hila D	-illi			_	0/96 E		10/10/9		
	hile D: me Af				ft. Upon Completion of Drillingft. Start 10/10 Driller TS		nu hief	Bob	Rig Mobile	
De	epth to	Wate	r		Logger DA	P E	ditor	TJK	B-57	
	pth to				Drill Method	2 1/4	t" I.1	D. SSA		
	The stra transitio	n may	on tines be grad	represer	the approximate boundary between soil types and the			3920)gint\BLA	LK ID: CHICAGO	



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB35 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

721.6

Northing:

1332.4

Easting:

-1207.8

<u></u>					210	00 Corporate Drive, Addison, Illinois 60101, TEL. (70	08) 691-	5000			
		AM	,			VISUAL CLASSIFICATION	1			PROP	ERTIES
No.	Rec.	Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
				- 5-		Brown, Fine to Coarse SAND and GRAVEI (SP/GP) MUNICIPAL WASTE; Small Pieces of Working Cinders, Glass			((51)		
				_		End of Boring at 7.0 ft					
				- -		Borehole Backfilled with Bentonite Hole Plug 1 ft Above Waste - Drill Cutting to Surface.	g to				
				- - 10-							
			W	- 15- ATF	RI	EVEL OBSERVATIONS		GEN	FRAI	NOTE	S
		••••									
Tii De De	hile Dr me Aft epth to epth to	er Dr Wate Cave	illing r in				Oriller Logger	10/11/90 TSC DAP thod 2	Chief Editor 1/4" I.		Rig Mobile B-57
\ 1	ransitio	n may b	ne grad	ual.		approximate boundary between soil types and the				:3920\gint\BLAC	K ID: CHICAGO



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

DuPage County, Illinois Location

Boring No. Job No.

TB36 3920.0041

Sheet

1 of 1

Northing:

Surface Elevation 719.5 1352.8

-1204.9

		W	ν 		2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Easting:	-1204.9
	S	AMI	PLE		VISUAL CLASSIFICATION	1	PROPERTIES
No.	LA .	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa)	PID (ppm) Remarks
					Large White Rock (Drainage Area Put in by DFPD to 6.0 ft Brown, Fine to Coarse SAND and GRAVEL (SP/GP) End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings.	(tsf)	
	<u></u>	l	W	ATE	R LEVEL OBSERVATIONS G	ENERA	LNOTES
Ti De De	hile Dr me Aft epth to epth to The strat	er Dr Water Cave	r in		Driller T	11/96 End FSC Chief DAP Edito od 2 1/4" I	r TJK B-57



Time After Drilling

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Depth to Water

Depth to Cave in

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

Job No.

3920.0041

TB37

Sheet Surface Elevation

TSC

DAP

Drill Method 2 1/4" I.D. SSA

Chief

Editor

Driller

Logger

Bob

TJK

1/3920/gint/BLACK_ID: CHICAGO

B-57

1 of 1 724.0

Northing:

1364.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -889.4 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-No. (in.) ture Depth PID and Remarks (qa) (tsf) Value (ft.) (ppm) Remarks Dark Gray Brown, Silty CLAY (CL-ML) Some Gravel Present End of Boring at 13.0 ft Borehole Backfilled with Drill Cuttings. 15-WATER LEVEL OBSERVATIONS **GENERAL NOTES** 10/11/96 End 10/11/96 While Drilling ft. Upon Completion of Drilling ft. Start Rig Mobile



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location **DuPage County, Illinois** Boring No.

TB38 3920.0041

Job No. Sheet

1 of 1

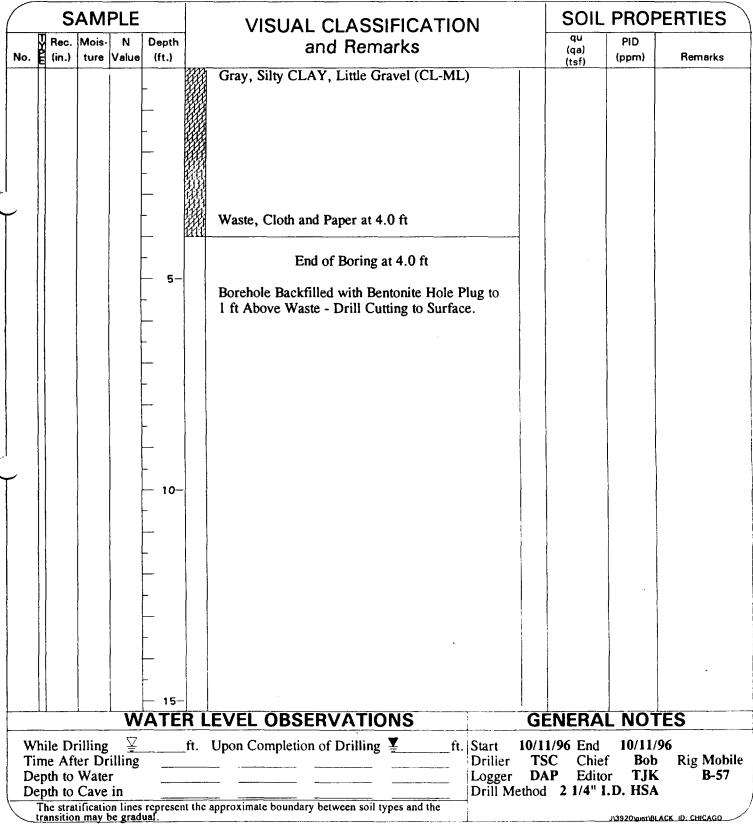
Surface Elevation

724.6 1344.8

Northing:

-885.5

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000





LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB39

Job No.

3920.0041

Sheet

1 of 1

Surface Elevation

723.5

Northing:

1355.7

Easting: -994.7

SAMPLE	VISUAL CLASSIFICATION	SOIL	PROPERTIES
Rec. Mois- N Depth No. (in.) ture Value (ft.)	and Remarks	qu (qa)	PID
Value ((tt.)	Gray Silty CLAY (CL-ML)	(tsf)	(ppm) Remarks
5-	Gray, Silty CLAY (CL-ML)		
- - - - 10-	Gray Brown, Silty CLAY (CL-ML)		
	End of Boring at 12.0 ft Borehole Backfilled with Drill Cuttings.		
WATE	R LEVEL OBSERVATIONS GE	NERAI	NOTES
While Drilling Time After Drilling Depth to Water Depth to Cave in The stratification lines represent the property of the	ft. Upon Completion of Drilling ft. Start 10/11 Driller TSC Logger DAI Drill Method	P Edito: 2 1/4" I.	r TJK B-57



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB40 3920.0041

Job No. Sheet

1 of 1

Surface Elevation Northing:

724.7

1333.0

J\3920\gint\BLACK_ID; CHICAGO

					21	00 Corporate Drive, Addison, Illinois 60101, TEL. (708)	691-500	Easting:	-993.	7	
	S	AM	PLE		=:	VISUAL CLASSIFICATION			- PROP	ERTIES	
No.	Rec.	Mois-		Depth		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks	
						Gray, Silty CLAY (CL-ML)					
				-		MUNICIPAL WASTE; Paper, Plastic					
				_		End of Boring at 3.5 ft					
				5 —		Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.	•				
				<u> </u>							
				_							
				-							
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! 								-			
				10-		٠ ·					
				 -							
				_				· ·			
				_				:			
				15-	.						
			W	ATE	RL	EVEL OBSERVATIONS	G	ENERA	L NOT	ES	
D D	hile Di ime Aft epth to epth to	ter Dr Wate Cave	rilling r in			····	er TS ger D <i>A</i>	1/96 End SC Chie AP Edit 1 2 1/4"	ef Bob or TJK	6 Rig Mob B-57	
	transitio	n may l	be grad	ual.	ic tile	approximate boundary between soil types and the			J\3920\gint\BLA	CK ID: CHICAGO	\mathcal{I}



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

DuPage County, Illinois

Boring No.

TB41 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

726.8

Northing:

1292.5

-805.8

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

S	AMP	LE			VISUAL CLASSIFICATION		!	SOIL PROPERTIES			
No. E (in.)	Mois- ture	N /alue	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks	
		-	-		Gray, Silty CLAY (CL-ML)			1017			
			 - - - 5-		MUNICIPAL WASTE; Numerous Wood Chips, Shredded Wood, Possible Went Throug Roots	gh					
		-	- - -		Possibly Drilling Through Tree Stump						
			-		End of Boring at 8.0 ft						
					Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.	to					
			— 15 <u>—</u>	1	CVEL ADAEDVA TIANA		<u> </u>	-5 A I			
					EVEL OBSERVATIONS				LON_		
Time At Depth to Depth to	While Drilling \(\frac{\subset}{2} \) Time After Drilling Depth to Water Depth to Cave in The stratification lines repres				Log	iller gger	0/11/90 TSC DAP nod 2	Chief Editor		Rig Mobile B-57	
transitio	on may be	gradu	เลโ.		· · · · · · · · · · · · · · · · · · ·				J\3920\aint\BL	ACK_ID; CHICAGO	



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. **TB42**Job No. **3920.0041**

Sheet 1 of 1

Surface Elevation 727.3

J/3920/gint/BLACK_ID; CHICAGO

Northing: **1283.2** Easting: **-827.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-PID Depth and Remarks (qa) (tsf) No. (ppm) Remarks (in.) ture Value (ft.) Dark Brown, Silty CLAY (TOPSOIL) Gray, Silty CLAY, Some Gravel (CL-ML) MUNICIPAL WASTE; Cloth, Fabric, Plastic End of Boring at 4.0 ft 5 Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. 10-WATER LEVEL OBSERVATIONS **GFNERAL NOTES** While Drilling ft. Upon Completion of Drilling Start 10/11/96 End 10/11/96 Time After Drilling Driller TSC Chief Bob Rig Mobile Depth to Water Logger DAP Editor **TJK** B-57 Depth to Cave in Drill Method 2 1/4" I.D. SSA

The stratification lines represent the approximate boundary between soil types and the

transition may be gradual



Depth to Cave in

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB43 3920.0041

Job No.

1 of 1

Sheet Surface Elevation

729.6

Northing:

1184.4

Drill Method 2 1/4" I.D. HSA

J\3920\gint\BLACK_ID; CHICAGO

-815.5

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-Ν Depth PID and Remarks (qa) (tsf) (in.) ture Value (ft.) (ppm) Remarks Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray, Silty CLAY (CL-ML) CLAY (CL) End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings. 10-- 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS ft. Upon Completion of Drilling 10/11/96 End 10/11/96 While Drilling ft. Start Bob Rig Mobile Time After Drilling Driller **TSC** Chief **TJK** B-57 DAP Depth to Water Logger Editor



LOG OF TEST BORING

Project 1

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB44

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

728.4

Northing:

1182.6 -839.2

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE					VISUAL CLASSIFICATION SOIL PROPER				PERTIES	
No. E (in	c. Mois-	N Value	Depth (ft.)		and Remarks	•	qu (qa) (tsf)	PID (ppm)	Remarks	
			-		Black, Silty Clay TOPSOIL, Dark Gray, CLAY, Some Gravel	Silty				
			- - - - - - 5-		MUNICIPAL WASTE; Paper, Fabric, Pl	astic				
			-		End of Boring at 5.0 ft					
			-		Borehole Backfilled with Bentonite Hole I 1 ft Above Waste - Drill Cutting to Surface					
			10 - -							
			-							
			 15_	1 1		·				
					EVEL OBSERVATIONS	 				
While Drilling ft. Upon Completion of Drilling Time After Drilling Depth to Water Depth to Cave in The stratification lines represent the approximate boundary between soil types and the transition may be gradual. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.						Driller 1	11/96 End ISC Chie DAP Edit od 2 1/4"	or TJK I.D. SSA	Rig Mobile B-57	
transit	uon may b	e gradi	uai.			1		J\3920\gint\BL	TJK B-57	



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No. Job No.

TB45 3920.0041

Sheet

1 of 1

Surface Elevation

730.7

Northing:

1074.0

J\3920\gint\8LACK_ID: CHICAGO

-834.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-Depth PID and Remarks (ap) (in.) (ft.) ture Value (ppm) No. Remarks Dark Brown, Silty Clay TOPSOIL Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray, Silty CLAY, Little Gravel (CL-ML) MUNICIPAL WASTE; Gray, Silty CLAY, Some Small Pieces of Wood and Plastic at 7.0 ft End of Boring at 8.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. 10 WATER LEVEL OBSERVATIONS **GENERAL NOTES** ft. Upon Completion of Drilling ft. 10/11/96 End 10/11/96 While Drilling Start Time After Drilling Driller **TSC** Chief **Bob** Rig Mobile Depth to Water Logger DAP Editor **TJK** B-57 Drill Method 2 1/4" I.D. SSA Depth to Cave in The stratification lines represent the approximate boundary between soil types and the transition may be gradual.



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

DuPage County, Illinois

Boring No. Job No.

TB46 3920.0041

Sheet

1 of 1

Surface Elevation

731.3

Northing:

1065.1

Easting: -815.4

SAMPLE	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000	SOIL PROPERTIES			
Rec. Mois- N Depth	VISUAL CLASSIFICATION	qu PID			
No. (in.) ture Value (ft.)	and Remarks	(qa)	(ppm) Remarks		
No. E (in.) ture Value (ft.)	Brown, Silty CLAY, Some Gravel (CL-ML) Some Cobble Present Dark Gray to Black, Silty CLAY (CL-ML) End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings.	(tsf)	(ppm) Remarks		
15					
	R LEVEL OBSERVATIONS GE	NERAL	NOTES		
While Drilling \(\subseteq \) Time After Drilling Depth to Water Depth to Cave in		1/96 End C Chief P Editor	10/11/96 Bob Rig Mobile TJK B-57		



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

The stratification lines represent the approximate boundary between soil types and the

transition may be gradual

DuPage County, Illinois

Boring No.

TB47 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

731.0

Northing:

981.2

J/3920\aint\BLACK_ID: CHICAGO

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -914.3 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-Depth PID and Remarks No. (qa) ture Value (ft.) (in.) (ppm) Remarks (tsf) Brown, Fine to Coarse SAND, Some Silt with Fine Gravel (SM) Gray Brown, Fine to Coarse SAND, Fine GRAVEL, Little Clay and Silt (SC-SM/GC-GM) Gray, Silty CLAY (CL-ML) MUNICIPAL WASTE; Paper, Plastic and Metal End of Boring at 8.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. 10-WATER LEVEL OBSERVATIONS **GENERAL NOTES** 10/11/96 End ft. Upon Completion of Drilling ft. Start 10/11/96 While Drilling Rig Mobile Time After Drilling TSC Chief Bob Driller DAP Editor **TJK** B-57 Depth to Water Logger Drill Method 2 1/4" I.D. SSA Depth to Cave in



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. Job No.

TB48 3920.0041

Sheet

1 of 1

Surface Elevation

730.9

Northing:

956.9 -868.4

Easting: -86

SAMPLE					VISUAL CLASSIFICATIO			S	OIL F	PROP	ERTIES
Rec. N		N	Depth		and Remarks	. 4		qı (q:	a)	PID	Pomerko
	flois- ture V		Depth (ft.)		and Remarks Dark Brown, Silty, Fine SAND (SM) Brown, Fine to Coarse SAND, Little Silt a Clay (SC-SM) Gray, Silty CLAY, Little Gravel (CL-ML)	and			a)	PID (ppm)	Remarks
			— 10—		End of Boring at 8.0 ft Borehole Backfilled with Bentonite Hole P I ft Above Waste - Drill Cutting to Surface		GE	· AIC	DAI	NOT	L e
					EVEL OBSERVATIONS					NOT	
While Dril Time After Depth to V Depth to C The stratif	r Drill Vater Cave in	1			Upon Completion of Drillingft. approximate boundary between soil types and the	Start Driller Logger Drill Me	10/11 TSe DA ethod	C P	Chief Editor	10/11/9 Bob TJK D. SSA	Rig Mobile B-57



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

DuPage County, Illinois

Boring No.

TB49 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

730.6

Northing:

945.6

Easting:

-848.9

	21	100 Corporate Drive, Addison, Illinois 60101, TE	L. (708) 691	-5000	<u> </u>			
SAMPLE		VISUAL CLASSIFICATION SOIL PROPERT					PERTIES	
No. ☐ (in.) ture Value (f	oth .)	and Remarks			qu (qe (ts	3)	PID (ppm)	Remarks
		Dark Brown, Silty CLAY (CL-ML)						
		Light Gray Brown, Silty CLAY (CL-MI	L)					
								<u> </u>
	5-							
		Brown, Fine to Coarse SAND and GRA (SP/GP)	VEL					
		End of Boring at 8.0 ft						
		Borehole Backfilled with Drill Cuttings.						
	10-					*.		
							•	
	į							
	İ					!		
	i	•						
	15-				<u></u>			
WA	TER	LEVEL OBSERVATIONS		GI	ENE	RAL	. NOT	ES
While Drilling \(\sum_{\text{times}} \)	ft.	Upon Completion of Drilling	ft. Start	10/1 TS	1/96 E		10/11/: Bob	
Time After Drilling Depth to Water			Driller Logger	DA	AP I	Chief Editor	TJK	
Depth to Cave in	acart 1L	a annovimuta boundary between sail turne and the	Drill M	ethod	2 1	/4" I.	D. SSA	,
transition may be gradual.	esent the	e approximate boundary between soil types and the		J\3920\gint\BLACK_ID; CHICAGO				



Time After Drilling

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

Depth to Water

Depth to Cave in

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB50 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

731.4

Northing:

926.8

-861.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-PID Depth and Remarks (qa) No. (in.) ture Value (ppm) Remarks (ft.) (tsf) Dark Brown, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY (CL-ML) End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings. 10 WATER LEVEL OBSERVATIONS **GENERAL NOTES** While Drilling ft. Upon Completion of Drilling Start 10/11/96 End 10/11/96

Driller

Logger

TSC

DAP

Drill Method 2 1/4" I.D. SSA

Chief

Editor

Bob

TKL

J\3920\omt\BLACK_ID; CHICAGO

Rig Mobile

B-57



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois Boring No.

TB51

Job No.

3920.0041

Sheet

1 of 1 Surface Elevation 731.8

Northing:

913.5 -882.5

	2100 Courses Drive Addison Illinois 60101 TEL (709) 601 500	Easting:	-882.5
CAMPLE	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000		PROPERTIES
SAMPLE	VISUAL CLASSIFICATION		PROPERTIES
Rec. Mois- N Depth No. E (in.) ture Value (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm) Remarks
- 5 - 10-	Dark Brown, Silty CLAY, Little Gravel (CL-ML) Brown Gray, Silty CLAY, Little Gravel (CL-ML) MUNICIPAL WASTE: Paper, Plastic, Cardboard and Wood End of Boring at 7.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.		
WATEI	R LEVEL OBSERVATIONS GE	NERAI	NOTES
		1/96 End	10/11/96
While Drilling \(\frac{\finte}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}{\frac{\frac{\frac}{\frac{\frac{\frac{\frac{\frac{\frac}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}{\frac}{\frac{\frac{\frac{\fir}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fir}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}{\frac{\frac{\frac{\fir}{\frac{\frac{\frac{\frac{\frac}{\frac{\frac{\fraccc}}}}{\frac{\frac{\frac{\fir}{\firighta}}}}}{\frac{\frac{\frac{\frac{\	Driller TS		
Depth to Water	Logger DA	P Editor	TJK B-57
Depth to Cave in	Drill Method	2 1/4" I.	D. SSA
The stratification lines represent	t the approximate boundary between soil types and the		



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois Boring No.

TB52 3920.0041

Job No. Sheet

1 of 1 729.4

Northing:

Surface Elevation 885.0

J\3920\aint\BLACK_ID; CHICAGO

-807.7

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu PID Rec. Mois-Ν Depth and Remarks (qa) (ppm) No. (in.) ture Value (ft.) Remarks (tsf) Dark Brown to Brown, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY, Some Gravel (CL-ML) MUNICIPAL WASTE: Paper, Plastic End of Boring at 5.5 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. 10-WATER LEVEL OBSERVATIONS **GENERAL NOTES** While Drilling ft. Upon Completion of Drilling ft. Start 10/11/96 End 10/11/96 Time After Drilling Driller **TSC** Chief Bob Rig Mobile Depth to Water DAP **Editor TJK** B-57 Logger Drill Method 2 1/4" I.D. SSA Depth to Cave in The stratification lines represent the approximate boundary between soil types and the transition may be gradual.



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

Job No.

3920.0041

1 of 1

Sheet Surface Elevation

728.4

Northing:

904.6

-794.7

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu PID Rec. Mois-Depth and Remarks (qa) No. (in.) ture Value (ft.) (mag) Remarks (tsf) Dark Brown, Silty CLAY (CL-ML) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray Brown, Silty CLAY, Little Gravel (CL-ML) End of Boring at 8.5 ft Borehole Backfilled with Drill Cuttings. 10-WATER LEVEL OBSERVATIONS **GENERAL NOTES** 10/11/96 ft. Upon Completion of Drilling 10/11/96 End While Drilling ft. Start Bob Rig Mobile Time After Drilling Driller TSC Chief DAP Depth to Water Logger Editor TJK B-57 Drill Method 2 1/4" I.D. SSA Depth to Cave in The stratification lines represent the approximate boundary between soil types and the transition may be gradual.



Depth to Cave in

transition may be gradual.

The stratification lines represent the approximate boundary between soil types and the

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB54

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

734.5

Northing:

Drill Method 2 1/4" I.D. SSA

J\3920\gint\BLACK_ID: CHICAGO

816.5 -730.1

Easting: -730.12100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION PID Mois-N Depth and Remarks (qa) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Silty CLAY (CL-ML) Black, Organic CLAY (CL) Gray, Silty CLAY, Some Gravel (CL-ML) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Dark Gray Brown, Silty CLAY, Little Gravel (CL-ML) End of Boring at 9.0 ft 10-Borehole Backfilled with Drill Cuttings. WATER LEVEL OBSERVATIONS **GENERAL NOTES** While Drilling ft. Upon Completion of Drilling ft. Start 10/11/96 End 10/11/96 Rig Mobile Bob Time After Drilling **TSC** Chief Driller DAP Editor **TJK** B-57 Depth to Water Logger



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB55 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

733.1

Northing:

794.5

Easting:

-737.9

						OU Corporate Drive, Addison, Illinois 60101, TEL. (7	08) 691-5000				
(AM				VISUAL CLASSIFICATION				PERTIES	
No.	Rec.	Mois-	N Value	Depth (ft.)		and Remarks		(ap)	PID (ppm)	Remarks	
						Black Organic SILT (ML)		(tsf)			
				- 5-		Gray, Fine to Coarse GRAVEL, Some Clay Silt (GC-GM) Gray, Silty CLAY, Little Gravel (CL-ML) MUNICIPAL WASTE: Paper, Plastic End of Boring at 8.0 ft Borehole Backfilled with Bentonite Hole Plu 1 ft Above Waste - Drill Cutting to Surface.	ug to				
				15-							
	1	<u> </u>	W		RL	EVEL OBSERVATIONS	GE	NER	AL NOT	ES	
Tir De De	ne Aforth to pth to	rilling ter Dr Wate Cave	∑ illing r in	represen	_ft.	Upon Completion of Drilling ft. S		/96 En C Ch P Ed	d 10/11/ ief Bob itor TJK " I.D. SSA	96 Rig Mobile B-57	
	<u>ransitio</u>	n may l	ne grad	ual.			J/3920 gint/BLACK_ID: CHICAGO				



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location

DuPage County, Illinois

Boring No.

TB56

Job No.

3920.0041 1 of 1

Sheet Surface Elevation

733.7

Northing:

764.4

Easting: -641.8

\sim					21	00 Corporate Drive, Addison, Illinois 60101, TEL.	(708) 691-500	0 -		
SAMPLE			,		VISUAL CLASSIFICATIO	011 1				
No.	M.	Mois- ture	N Value	Depth (ft.)		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
						Black, Organic, Silty CLAY (CL-ML)		((31)		
				-		Brown, Fine to Coarse SAND and GRAV (SP/GP)	EL			
				- - - 5-		Gray Brown, Silty, Clayey GRAVEL (GC				
				-		Dark Gray Brown, Silty CLAY (CL-ML)				
				- - - 10-		End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings.				
				- 15-						
			W	ATE	RL	EVEL OBSERVATIONS	G	ENERA	L NOT	ES
Ti De De	hile Di me After to epth to	ter Dr Wate Cave	rilling r in			Upon Completion of Drillingft. approximate boundary between soil types and the	Driller T	11/96 End SC Chie AP Edito d 2 1/4" l	or TJK I.D. SSA	Rig Mobile B-57
	ci anstri0	ii iiiay t	or Klau	was.					¬¬33×0.0000000TRFV	LA JUL LINGALUL -



transition may be gradual

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB57

Job No. Sheet

1 of 1

Surface Elevation

734.1

Northing: Easting:

741.7 -647.2

J/3920/amt/BLACK_ID: CHICAGI

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-PID Depth and Remarks (qa) No. (in.) ture Value (ft.) Remarks (ppm) (tsf) Black Organic, Silty CLAY (CL-ML) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Brown, Silty, Clayey GRAVEL (GC-GM) Gray, Silty, Clayey GRAVEL (GC-GM) Brown SAND and GRAVEL (SP/GP) Gray Brown, Silty CLAY (CL-ML) End of Boring at 9.0 ft 10 Borehole Backfilled with Drill Cuttings. WATER LEVEL OBSERVATIONS **GENERAL NOTES** While Drilling ft. Upon Completion of Drilling ft. Start 10/11/96 End Time After Drilling Driller Chief Bob Rig Mobile TSC DAP **TJK** B-57 Depth to Water Logger Editor Drill Method 2 1/4" I.D. SSA Depth to Cave in The stratification lines represent the approximate boundary between soil types and the



Depth to Cave in

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB58

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

734.5

Northing:

Drill Method 2 1/4" I.D. SSA

J/3920\gint\BLACK_ID: CHICAGO

720.6

-662.2 Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SOIL PROPERTIES SAMPLE VISUAL CLASSIFICATION qu PID Rec. Mois-Depth and Remarks (qa) (ppm) Remarks No. (in.) ture Value (ft.) (tsf) Brown, Silty, Clayey GRAVEL (GC-GM) Brown, Fine to Coarse SAND and GRAVEL, Cobbles (SP/GP) Gray, Silty, Clayey GRAVEL (GC-GM) Gray, Silty CLAY, Some Waste; Paper, Plastic Metal (CL-ML) End of Boring at 9.0 ft 10-Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cuttings to Surface. WATER LEVEL OBSERVATIONS **GENERAL NOTES** ft. Upon Completion of Drilling 10/11/96 End While Drilling ft. Start 10/11/96 **Bob** Rig Mobile Time After Drilling Driller TSC Chief DAP **TJK** B-57 Depth to Water Logger Editor



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location

DuPage County, Illinois

Boring No.

TB59 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

734.2

Northing:

721.9

		W	<i>y</i>		100 Corporate Drive, Addison, Illinois 60101,	TEL (708) 691-500	Easting:	-543.	5	
	S	AM	PLE		VISUAL CLASSIFICA		1	PROP	ERTIES	
No.	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	11014	qu (qa) (tsf)	PID (ppm)	Remarks	
				-	Dark Brown, Silty CLAY (TOPSOIL	.)				
					Brown, Fine to Coarse SAND and G (SP/GP)	RAVEL)
				-	Gray, Silty CLAY, Some Gravel (CI	ML)				
				5 - 						
				_	End of Boring at 8.0 ft					
Î.				 10	Borehole Backfilled with Drill Cutting	gs.				
				- - -				•		
				-						
			W	- 15- ATE	LEVEL OBSERVATIONS	GI	NERA	L NOTI	ES	
T D D	Thile Drime After to epth to The stratter transition	er Dr Water Cave	<u></u> illing r in		Upon Completion of Drilling	ft. Start 10/14 Driller TS Logger DA Drill Method	4/96 End C Chief AP Edito	10/14/9 Bob r TJK	6 Rig Mobil B-57	le



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

Job No.

TB60 3920.0041

Sheet

1 of 1

Surface Elevation

734.5

Northing:

706.5

Easting:

-556.7

<u></u>					210	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-	5000		-550.	<u> </u>
			PLE			VISUAL CLASSIFICATION SOIL PROPERT					ERTIES
No.	41	Mois-	N Value	Depth (ft.)		and Remarks			(qa) (tsf)	PID (ppm)	Remarks
	<u>-</u>					Brown, Silty CLAY (CL-ML)			(tai)		
				-							
				-		Brown, Fine to Coarse SAND and GRAVE	EL				
				<u> </u>		(SP/GP)	1	-	1		
]				<u> </u>	• •]		,		
1				-							
7				_	. 1		}				
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				_			ĺ				
}	}		}	- 5-	100	Gray and Brown, Silty CLAY, Little GRA	VEI	İ			
				-		(CL-ML)	VEL			1	
						•					
				-				İ			
				<u> </u>							
	[]			L						j	
				-		End of Boring at 8.0 ft					
ا	}			<u> </u> 		~					
			}	}		Borehole Backfilled with Drill Cuttings.				Ì	
				10-	-						
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			Ì	15-	_						
	LL	J.,	W	ATE	RL	EVEL OBSERVATIONS		GEN	ERAL	NOT	ES
W	hile D	rilling					Start	10/14/90	5 End	10/14/9	6
Tin	me Af	ter Dr	illing				Driller	TSC	Chief	Bob	Rig Mobile
	pth to pth to						Logger Drill Me	DAP	Editor	TJK D. SSA	B-57
<u></u>	The stra	tification	on lines	represer	nt the	approximate boundary between soil types and the	Dim Mic	uivu 2			,
_!	ransitio	n may l	he grad	ual.					L	3920\gint\BLA	CK_ID: CHICAGO



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB61

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

736.5

Northing:

678.3

Easting: -569.4

	S	AMI	PLE			O Corporate Drive, Addison, Illinois 60101, TEL. (7		5000	*****	PROF	PERTIES
No.	Rec.	Mois-	N Value	Depth (ft.)		and Remarks	•		qu (ap)	PID (nom)	Remarks
IAO. E	(87.)	ture	A SIUG	- (rc.)		Brown, Silty CLAY (CL-ML)			(tsf)	(ppm)	nemarks
				-		Brown, Fine to Coarse SAND and GRAVE (SP/GP)	EL				
\ }				-							
				 - 5-		Gray, Silty CLAY, Little Sand and Gravel					
				- -		(CL-ML)					
				— 10— -		End of Boring at 9.5 ft					
				-		Borehole Backfilled with Drill Cuttings.					
				-							
	·			_ 15-	1 1						
	 -					EVEL OBSERVATIONS			NERAL		
Tim Dep Dep	e Aft th to th to	illing er Dr Wate Cave	illing r in				Driller Logger	TS DA		TJK	Rig Mobile
tra	ne stra Insitio	tification may h	n lines e grad	represen ual.	t the	approximate boundary between soil types and the				J\3920\gint\BL	ACK ID: CHICAGO



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB62

740.0

Job No. Sheet

3920.0041

Surface Elevation

1 of 1

Northing:

659.8

SAMPLE No. Rec. Mois N Depth (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) ture Value (ft.) No. (in.) (in.) (ft.) No. (in.) (in.) (in.) (in.) No. (in.) (in.) (in.) No. (in.) (in.) (in.) (in.) No. (in.) (in.) (i						21	00 Corporate Drive, Addison, Illinois 60101, TEL. ((708) 691-	Easting: -	-582.	2
Rec. Mois Value Value Mois Value Mois Value Mois Value Mois Mois Value Mois Mois Value Mois Mois Mois Value Mois		S	AM	PLE						PROP	ERTIES
Dark Gray Brown, Silty CLAY (CL-ML) Gray Brown GRAVEL and SAND, Some Silt and Clay (GC-GM/SC-SM) Gray, Silty, Clayey GRAVEL (GC-GM) Brown, Fine to Coarse SAND and GRAVEL, Some Clay (SC-SM/GC-GM) Dark Gray, Silty, Clayey GRAVEL (GC-GM) Dark Gray, Silty, Clayey GRAVEL (GC-GM) MUNICIPAL WASTE: Small Pieces of Wood, Clothing and Paper End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS While Drilling In Upon Completion of Drilling for It. Start In 10/14/96 End In 10/14/96 TSC Chief Bob Rig Mobi	No.	-K.I		1	,			• •	(ap)	l i	Remarks
and Clay (GC-GM/SC-SM) Gray, Silty, Clayey GRAVEL (GC-GM) Brown, Fine to Coarse SAND and GRAVEL, Some Clay (SC-SM/GC-GM) Dark Gray, Silty, Clayey GRAVEL (GC-GM) Dark Gray, Silty, Clayey GRAVEL (GC-GM) End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole Plug to I ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS While Drilling Fit. Upon Completion of Drilling Fit. Start 10/14/96 End 10/14/96 Time After Drilling TSC Chief Bob Rig Mobi					_		Dark Gray Brown, Silty CLAY (CL-ML)		((31)		
Brown, Fine to Coarse SAND and GRAVEL; Some Clay (SC-SM/GC-GM) Dark Gray, Silty, Clayey GRAVEL (GC-GM) MUNICIPAL WASTE: Small Pieces of Wood, Clothing and Paper End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole Plug to I ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling ft. Start 10/14/96 End 10/14/96 Trime After Drilling ft. Upon Completion of Drilling ft. Start 10/14/96 End 10/14/96 Driller TSC Chief Bob Rig Mobi					- - -			Silt			
Some Clay (SC-SM/GC-GM) Dark Gray, Silty, Clayey GRAVEL (GC-GM) MUNICIPAL WASTE: Small Pieces of Wood, Clothing and Paper End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling ft. Start 10/14/96 End 10/14/96 Time After Drilling Driller TSC Chief Bob Rig Mobi					- - - - 5-		Gray, Silty, Clayey GRAVEL (GC-GM)				
MUNICIPAL WASTE: Small Pieces of Wood, Clothing and Paper End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole Plug to I ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling ft. Start 10/14/96 End 10/14/96 Time After Drilling Driller TSC Chief Bob Rig Mobi					_			EL,			
Clothing and Paper End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling Time After Drilling Time After Drilling Clothing and Paper End of Boring at 12.0 ft Bob Rig Mobil					- - - - 10-		Dark Gray, Silty, Clayey GRAVEL (GC-6	GM)			
Borehole Backfilled with Bentonite Hole Plug to I ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling ft. Upon Completion of Drilling priller TSC Chief Bob Rig Mobile Completion of Drilling TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Completion of Driller TSC Chief Bob Rig Mobile Chief Bo								Vood,			
While Drilling ft. Upon Completion of Drilling ft. Start 10/14/96 End 10/14/96 Time After Drilling ft. Start 10/14/96 End 10/14/96 Driller TSC Chief Bob Rig Mobi					- 15-		Borehole Backfilled with Bentonite Hole F				
Time After Drilling Driller TSC Chief Bob Rig Mobi				W	ATE	RΙ	EVEL OBSERVATIONS		GENERA	LNOT	ES
Depth to Water Depth to Cave in The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Logger DAP Editor TJK B-57 Drill Method 2 1/4" I.D. SSA	Tir De De	ne Aft pth to pth to The strat	er Dr Wate Cave	rilling r in	represen			Driller Logger	TSC Chie DAP Edite	f Bob or TJK	6 Rig Mobile B-57



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB63 3920.0041

Job No.

1 of 1

1/3920/gmt/BLACK_ID: CHICAGO

Sheet Surface Elevation

735.7

Northing:

641.6

-474.7 Easting:

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu No. Rec. Mois-Ν PID Depth and Remarks (qa) (in.) Value (ppm) ture (ft.) Remarks (tsf) Dark Brown, Silty CLAY (TOPSOIL) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray, Silty CLAY, Little Gravel (CL-ML) End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings. 10 WATER LEVEL OBSERVATIONS **GENERAL NOTES** ft. Start 10/14/96 End 10/14/96 While Drilling ft. Upon Completion of Drilling TSC Bob Rig Mobile Time After Drilling Driller Chief Logger DAP **TJK B-57** Depth to Water **Editor** Depth to Cave in Drill Method 2 1/4" I.D. SSA The stratification lines represent the approximate boundary between soil types and the transition may be gradual.



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB64

Job No. Sheet

3920.0041 1 of 2

Surface Elevation

739.3

Northing:

622.2

J\3920\gint\BLACK_ID: CHICAGO

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -486.8 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION PID Rec. Mois-Ν Depth and Remarks (qa) (tsf) (ppm) Remarks No. (in.) ture Value (ft.) Dark Brown, Silty CLAY (CL-ML) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray Brown, Silty, Clayey SAND (SC-SM) Gray, Silty CLAY, Little Sand (CL-ML) Hit Rock at 12.0 ft MUNICIPAL WASTE: Plastic Mixed with Clay **GENERAL NOTES** WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling \(\frac{1}{2} \) ft. Start 10/14/96 End 10/14/96 Time After Drilling Driller **TSC** Chief Bob Rig Mobile Depth to Water Logger DAP Editor TJK B-57 Depth to Cave in Drill Method 2 1/4" I.D. SSA The stratification lines represent the approximate boundary between soil types and the transition may be gradual.



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB64

Job No.

3920.0041 2 of 2

Sheet Surface Elevation

739.3

Northing:

622.2

-486.8

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

					VISUAL CLASSIFIC	ATION	SOIL PROPERTI			
N	о.	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks		qu (qs) (tsf)	PID (ppm)	Remarks
					<u>-</u>	End of Boring at 15.0	ft	ļ		
						Borehole Backfilled with Bentonite 1 ft Above Waste - Drill Cutting to	e Hole Plug to Surface.			
					_			}		
	i				_		·			<u> </u>
					_					
					20-					
					_					
					 					
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					25-					
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					-					



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

DuPage County, Illinois Location

Boring No.

TB65

Job No.

3920.0041 1 of 1

Sheet Surface Elevation

735.0

Northing: Easting:

596.0 -387.1

SA	MA	PLE		VICIAL CLASSIFICATION		_ PROP	ERTIES
Rec.		N	Depth	VISUAL CLASSIFICATION and Remarks	qu	PID	
No. (in.)		Value	(ft.)		(qa) (tsf)	(ppm)	Remarks
			-	Dark Brown, Silty CLAY (CL-ML) Dark Brown CLAY (CL)			I
				Brown, Fine to Coarse SAND and GRAVEL, Some Clay (SC-SM/GC-GM)			
			- 5- - - -	Gray, Silty CLAY, No Waste (CL-ML)			
			— — — 10—	MUNICIPAL WASTE: Piece of Wire, Plastic (Very Edge of Waste)			
			_	End of Boring at 10.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.			
			15				
		W	ATE	R LEVEL OBSERVATIONS GE	NER/	L NOT	ES
While Dri	er Dr Water Cave	illing r in		ft. Upon Completion of Drilling ft. Start 10/14 Driller TS Logger DA Drill Method	P Edit	ef Bob	Rig Mobile B-57



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB66

Job No.

3920.0041 1 of 1

Sheet Surface Elevation

734.4

Northing:

Easting:

616.6 -378.3

	S	 Δ [Λ] Δ	PLE		1	VICIAL OLACCIFICATION			SOII	PROP	ERTIES
N F		Mois-	N	Depth	1	VISUAL CLASSIFICATION	Į		qu	PID	LITTIEU
1 141	(in.)		Value			and Remarks			(qa) (tsf)	(ppm)	Remarks
						Brown, Silty CLAY Cover (CL-ML)					
				-		Brown, Fine to Coarse SAND and GRAVEL	L		ļ		
				_		(SP/GP)					
	ļ			-							
		ĺ			3:						
	Ì	l	:							1	
							}				
				_		Gray Brown to Gray, Silty CLAY (CL-ML)					
	Ì										
				_ 5_							
				-							
				-		End of Boring at 8.0 ft		1			
				_		_					
	ļ			-		Borehole Backfilled with Drill Cuttings.					
				- 10-							
				-							
				_					į		
				-							
				-							
				-			-				
									1		
				-							
				-							
				15-							
			W	ATE	R L	EVEL OBSERVATIONS		GEN	ERAL	NOT	ES
		illing			ft.	Upon Completion of Drilling 🛂ft. S			6 End	10/14/9	
		er Dr Wate	illing r	-		,		TSC DAP	Chief Editor	Bob TJK	Rig Mobile B-57
Dept	h to	Cave	in			D	ogget Drill Metl		1/4" I.		2 v .
The	strat	ification may b	on lines ne grad	represenual.	t the s	approximate boundary between soil types and the			الم	3920\gint\BLA	CK ID: CHICAGO



While Drilling

Depth to Water

Depth to Cave in

Time After Drilling

transition may be gradual

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

TB67 Boring No. Job No. 3920.0041

Sheet 1 of 1

Surface Elevation 731.7

Northing: 577.5 -283.7

GENERAL NOTES

Chief

Editor

10/14/96

Bob

TJK

J\3920\gint\BLACK_ID; CHICAGO

Rig Mobile

B-57

10/14/96 End

Drill Method 2 1/4" I.D. SSA

TSC

DAP

Start

Driller

Logger

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-Depth PID and Remarks (qa) (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Silty CLAY (TOPSOIL) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray Brown, Silty, Clayey GRAVEL (GC-GM) Gray, Silty GRAVEL (GM) End of Boring at 8.0 ft Borehole Backfilled with Drill Cuttings. 10 15-

WATER LEVEL OBSERVATIONS

The stratification lines represent the approximate boundary between soil types and the

ft. Upon Completion of Drilling \(\brace \)



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois Boring No. Job No.

TB68 3920.0041

Sheet

1 of 1

Surface Elevation

734.6

Northing:

547.1

-300.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	S	ΑΜΙ	PLE		VISUAL CLASSIFICATION	SOII	L PROPE	RTIES \
No.	Rec. (in.)		N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
				-	Dark Brown to Brown SAND and GRAVEL, Some Silt and Clay (SC-SM/GC-GM)			
				-	Dark Brown, Silty CLAY (CL-ML)			
				_ - _ 5–	Brown, Fine to Coarse SAND and GRAVEL (SP/GP)			
ý.				- - - - - - - -	Gray, Silty CLAY, Little Gravel (CL-ML)			
				- 10-	End of Boring at 10.0 ft			
				- - - - - - -	Borehole Backfilled with Drill Cuttings.			
1			W	ATE	R LEVEL OBSERVATIONS G	ENERA	L NOTE	S
Tin De De	nile Dr ne Afte pth to pth to	er Dr Water Cave	illing r in		Driller T	14/96 End SC Chic AP Edit d 2 1/4"	ef Bob or TJK	Rig Mobile B-57



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB69

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

737.4

Northing:

523.1

Easting:

-312.2

\	_					210	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691	-5000			
	107		·	PLE		 	VISUAL CLASSIFICATIO	N				ERTIES
No.		Rec. (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
					- -	The state of	Brown to Gray Brown, Silty, Clayey GRA (GC-GM)	VEL		((3))		
					- -		Gray Brown, Silty CLAY (CL-ML)					
					5-		Brown, Fine to Coarse SAND and GRAVI (SP/GP)					
					- 10-		Gray, Silty CLAY, Little Gravel (CL-ML))				
							Brown, Clayey SAND (SC)					
							End of Boring at 12.0 ft Borehole Backfilled with Drill Cuttings.					
				W	1	1 i	EVEL OBSERVATIONS		GEN	IERAL	NOT	ES
T D	im ep ep Ti	e Afi th to th to	Wate Cave	rilling r in	represen		Upon Completion of Drillingft. approximate boundary between soil types and the	Start Driller Logger Drill M	10/14/9 TSC DAP ethod	Chief Editor 2 1/4" I.1	D. SSA	Rig Mobile B-57
	tra	nsitio	n may	he grad	luaf.			I			3920\amt\BLA	CK_ID; CHICAGO



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

DuPage County, Illinois

Boring No.

TB70 3920.0041

Job No. Sheet

1 of 2

Surface Elevation

739.3

Northing:

501.4

Easting:

-319.3

J\3920\gint\BLACK_ID; CHICAGO

					210	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-50	໐໐໐້			
			PLE	,		VISUAL CLASSIFICATION			PROF	PERTIES
No.	Rec.	Mois- ture	N Value	Depth (ft.)		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
					2222	Dark Brown, Silty CLAY (CL-ML)				
				-		Gray Brown, Silty, Clayey GRAVEL, Some			Ì	
			i	_		Fine Sand (GC-GM)	- 1			
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1			į	-	进列	·				
				_		Com Sile Clause CDAVEL (CC CM)			[
		1	[Gray, Silty, Clayey GRAVEL (GC-GM)				
		İ						Į.		
				- 5-		Brown, Silty CLAY (CL-ML)				
				-						
		<u> </u>		-		Dark Gray Brown, Silty CLAY (CL-ML)			1	
		ŀ		_		Dark Gray Brown, Only CEATT (CE-ME)				
				_			l	-	l	
							l			
				<u> </u>		Gray, Silty CLAY, Little Gravel (CL-ML)				
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		Ì		- 15-	1333					
	1.1		W	ATE	RL	EVEL OBSERVATIONS (GEI	VERAL	NOT	ES
w	hile D	rilling	₹		ft.	Upon Completion of Drilling ₹ ft. Start 10)/14/	96 End	10/14/9	96
	me Af					Driller	TSC	Chief	Bob	Rig Mobile
De	epth to	Wate	r				DAP			B-57
	pth to					Drill Meth	nod	2 1/4" I.	D. SSA	



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

DuPage County, Illinois Location

Boring No.

TB70

Job No. Sheet

3920.0041 2 of 2

Surface Elevation

739.3

Northing:

501.4 -319.3

					OO Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-50		SOIL	PROF	PERTIES
	Rec.	Mois- ture	N Value	Depth	VISUAL CLASSIFICATION and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
					End of Boring at 16.0 ft Borehole Backfilled with Drill Cuttings.				
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				20-					
				_					
				_					
				_ 25_					
				 - -					
				_					
				-		ļ			
				30-					
						-			



While Drilling

Depth to Water

Depth to Cave in

Time After Drilling

transition may be gradua

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB71

Job No.

3920.0041 1 of 1

Sheet Surface Elevation

730.6

Northing:

526.2

10/14/96 End

Drill Method 2 1/4" I.D. SSA

Chief

Editor

TSC

DAP

10/14/96

Bob

TJK

J\3920\gint\BLACK_ID: CHICAGO

Rig Mobile

B-57

ft. Start

Driller

Logger

-200.8

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-PID Ν Depth and Remarks (qa) ture Value (in.) (ft.) (ppm) Remarks (tsf) Dark Brown, Silty CLAY (TOPSOIL) Brown, Silty CLAY, Some Sand and Gravel (CL-ML) Brown, Silty CLAY, Little gravel (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) Light Gray Brown, Silty, Clayey GRAVEL (CC-GM) End of Boring at 10.0 ft Borehole Backfilled with Drill Cuttings. 15 WATER LEVEL OBSERVATIONS **GENERAL NOTES**

ft. Upon Completion of Drilling

The stratification lines represent the approximate boundary between soil types and the



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location **DuPage County, Illinois** Boring No.

TB72

Job No. Sheet

3920.0041 1 of 2

Surface Elevation

734.4

Northing: Easting:

502.2 -218.4

					2100	Corporate Drive, Addison, Illinois 60	101, TEL. (708) 691-	5000			
			PLE			VISUAL CLASSIFIC			S		PROP	ERTIES
No.	J	Mois- ture	N Value	Depth (ft.)		and Remark	S		(qu qa) :sf)	PID (ppm)	Remarks
		<u></u>			MM C	Gray Brown, Fine to Coarse SAI	ND and		· · · · · ·	.317		
				_		GRAVEL, Some Silt and Clay	112 and					
1 1		!				SC-SM/GC-GM)					1	
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	}	}		-	illi)							
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					MM .					ļ		
				 5-	В	Brown, SAND and GRAVEL, So	ome Silt a	nd				
				_	M C	Clay (SC-SM/GC-GM)						
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		'			KALA .							
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		}			MH .					1		
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		}		- 10-		Gray Brown, Fine SAND and Gl	RAVEL, S	Some))			
1 1	ļ			-	S S	Silt and Clay (SC-SM/GC-GM)						
			[ĺ		
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	ļ								}	}		
]	}	_	F 1 C	Gray, Silty, Clayey GRAVEL (C	GC-GM)		j			
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1 1										1		
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1				Γ						,)	
				<u> </u>	7 T	Dark Gray Brown, Silty CLAY,	Little Ein	- to		1	-	
1 1				L		Coarse Sand, No Waste to 17.0			1 1			
1	Ì			15	1555551	coarse Sand, 140 Waste to 17.0	II (CL-MI	-)	1 1	ļ		
	l		10/	15-	<u>. </u>	VEL ODGEDVATIONS	<u> </u>		CENI	DAI	NOT	E0
						VEL OBSERVATIONS					. NOTI	
		illing			_ft. Up	oon Completion of Drilling 🛂	ft.		10/14/96		10/14/9	
			illing					Driller	TSC	Chief		Rig Mobile
		Wate						Logger	DAP	Editor		B-57
		Cave						Drill Me	ethod 2	1/4" I.	D. SSA	
tr	he stral ansition	ification in the street of the	on lines be grad	represen ual.	it the app	roximate boundary between soil types a	and the				1\3920\gint\BLA	CK ID: CHICAGO



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB72

Job No.

3920.0041

Sheet

2 of 2

Surface Elevation

734.4

Northing:

502.2 -218.4

			Ü	IJ		21	Location DuPage County, Illinois OO Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5	' 1	Northing: Easting:	-218.	
	П		AM Mois-	PLE	Depth	-	VISUAL CLASSIFICATION		qu	PROP	ERTIES
No.	Ě	(in.)		Value		aaaal	and Remarks		(qs) (tsf)	(ppm)	Remarks
					ŀ						
					-						
					-						
					_		End of Boring at 17.0 ft				
					-		Borehole Backfilled with Drill Cuttings.				,
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LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB72A

Job No. Sheet

3920.0041 1 of 2

Surface Elevation

734.4

Northing:

502.2 -218.4

			W	<i>y</i>	<u>-</u>	21	00 Corporate Drive, Addison, Illinois 60101, TEL. (! 708) 691-500	Easting:	-218	.4
		S	AM	PLE			VISUAL CLASSIFICATIO			PROF	PERTIES
No	·	Rec. (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks	•	qu (qa) (tsf)	PID (ppm)	Remarks
				ļ			Blind Drilled to 17.0 ft		((0))		· <u>-</u>
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-				W	1	RI	EVEL OBSERVATIONS	G	ENERA	NOT	FS
	 Х/ь:	la De	illing						14/96 End	10/14/	
1	Γim	e Aft	er Dr	illing			opon completion of Drining =It.	Driller T	SC Chief	Bob	Rig Mobile
			Wate Cave					Logger D Drill Metho	AP Edito		B-57
-					represen	t the	approximate boundary between soil types and the	Dilli Medio	u 21/7 l	.D. OOA	*** ID GUIGAGO



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB72A 3920.0041

Job No. Sheet

2 of 2

Surface Elevation

734.4

Northing:

502.2

-218.4

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

(PLE		VISUAL CLASSIFICATION	SOIL PROPERTIES		
N	o.	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
					_	Gray Brown, Silty CLAY (CL-ML)			
						Brown CLAY (CL)			
					- 20- - -	Gray Brown, Silty CLAY, No Waste (CL-ML)			
					-	End of Boring at 23.0 ft Borehole Backfilled with Drill Cuttings.			
					25_ 				
					30-				
									,



The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

DuPage County, Illinois Location

Boring No.

TB73 3920.0041

Job No. Sheet

1 of 2

Surface Elevation

740.1

Northing:

471.3

J\3920\gint\BLACK_ID; CHICAGO

Easting: -249.9

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000												
SAMPLE							VISUAL CLASSIFICATION					
No.	44.	Rec. (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
	Ħ			<u> </u>		m	Brown, Silty CLAY, Fine Sand (CL-ML)	<u></u>		(181)		
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					- 5-		Gray, Silty CLAY, Some Gravel (CL-ML))	1			
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					_		Gray Brown, Silty CLAY, Little Fine to C Sand and Gravel (CL-ML)	oarse				
					<u> </u>		Saild and Graver (CL-IVIL)	ļ				
1				Ï								
7												
					10-		Gray Brown to Brown, Silty CLAY, Little	Fine				
	$\ $			i	-		to Coarse Gravel (CL-ML)		ļ			
					<u> </u>		Brown, Fine to Coarse SAND and GRAVI	EL				
	11				}		(SP/GP)					
					<u> </u>							
					-							
					L							
					_		Gray Brown, Silty CLAY (CL-ML)					
							Color Changing to Gray at 14.0 ft					
					15-	糊						
-	П			\\	i	RI	EVEL OBSERVATIONS		Cr	NERA	NOT	TES
117	1. ••		•11:					C				
			illing er Dr			_III.		Start Driller	10/.14 TS	1/96 End C Chief	10/14/ Bob	
Depth to Water							Logger	DA	P Edito	r TJK	B-57	
Depth to Cave in									thod	2 1/4" I	D. SŠA	



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location DuPage County, Illinois Boring No. Job No.

TB73 3920.0041

Sheet

2 of 2

Surface Elevation Northing:

740.1 471.3

			<u> </u>	y		2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-50	Lasting: _	-249	0.9
SAMPLE			VISUAL CLASSIFICATION		PROF	PERTIES			
No.	Y	Rec. (in.)	Mois-	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
						Gray, Silty CLAY, Trace Fine to Coarse Gravel (CL-ML)	(tal)		
					20 	Gray Brown, Silty CLAY, Trace Fine to Coarse Gravel (CL-ML)			
					- - - 25-	MUNICIPAL WASTE: Paper, Plastic, Cardboard			
						End of Boring at 25.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.			
					_				
					30-				



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB74

Job No. Sheet 3920.0041

Surface Elevation

734.7

Northing: Easting: 444.7 -161.7

1 of 2

_	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000									
	SAMPLE					VISUAL CLASSIFICATION				ERTIES
No.		. Mois-	1	Depth (ft.)		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
						Brown, Silty CLAY (CL-ML)	Ī	((0))		
	! !			r						
				 						
				_						
									}	
				-						
$\overline{}$!					Gray, Silty CLAY to Dark Gray Brown, Si	ilty			
				-		CLAY (CL-ML)				
				_						
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				— 5 —						
				_					;	
				_		Gray Brown, Silty CLAY to Gray Silty CL	AY			
						(CL-ML)				
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\bigcap				10_						•
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				-						
1				_		Gray Brown, Silty CLAY (CL-ML)				
				_		Gray Blown, Sing CLAT (CL-ML)				
				- 15-	i					
			W	ATE	RL	EVEL OBSERVATIONS		GENERA	L NOT	ES
W	hile I	Prilling	, ¥		ft.	Upon Completion of Drillingft.	Start 1	10/14/96 End	10/14/9	
Ti	me A	fter Di	rilling				Driller	TSC Chie		Rig Mobile B-57
		o Wate o Cave					Logger Drill Me	DAP Editor thod 2 1/4" I		D-3/
The stratification lines represent the approximate boundary between soil types and the transition may be gradual.										CK ID: CHICAGO



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location **DuPage County, Illinois** Boring No. Job No.

Surface Elevation

TB74 3920.0041

Sheet

2 of 2 734.7

Northing:

444.7

SAMPLE No. Rec. Mois- N Depth (ft.)					OO Corporate Drive, Addison, Illinois 60101, TEL. (708) 691	1-5000	Easting: -161.7			
					VISUAL CLASSIFICATION and Remarks		SOIL PROPERTIES			
					Gray, Silty CLAY to CLAY (CL-ML/CL)		(tsf)			
			-		MUNICIPAL WASTE: Small Pieces of Cloth at 21.0 ft, Edge of Waste End of Boring at 23.0 ft					
			- 25- 		Borehole Backfilled with Bentonite Hole Plug to 1 at Above Waste - Drill Cutting to Surface.					
			30-							



Time After Drilling

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

Depth to Water

Depth to Cave in

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location **DuPage County, Illinois** Boring No. **TB75** Job No. 3920.0041

1 of 2 Sheet

Surface Elevation 739.9

Rig Mobile

B-57

Northing: 416.7 -177.4

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION No. Rec. Mois-Depth PID and Remarks (qa) (tsf) ture Value (ft.) (ppm) Remarks Brown, Silty CLAY (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) Dark Gray Brown, Silty CLAY (CL-ML) Brown, Fine to Coarse SAND and GRAVEL, Some CLAY (SC/GC) WATER LEVEL OBSERVATIONS **GENERAL NOTES** While Drilling ft. Upon Completion of Drilling \(\brace \) ft. Start 10/14/96 End 10/14/96

Driller

Logger

TSC

DAP

Drill Method 2 1/4" I.D. SSA

Chief

Editor

Bob

TJK

J/3920/gint/BLACK_ID; CHICAGO



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

DuPage County, Illinois Location

Boring No. Job No.

TB75 3920.0041

Sheet

2 of 2 739.9

Surface Elevation Northing:

416.7

SAMPLE					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-	SOII	SOIL PROPERTIES		
4	Rec.	Mois-	N	Depth	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks	
				-					
					Gray Brown, Silty CLAY, Little Gravel (CL-ML)				
				- -	Dark Gray, Silty CLAY (CL-ML)				
				- 20 					
				- - - -	Gray, Silty CLAY, Little Gravel (CL-ML)				
				 - - 25-	MUNICIPAL WASTE: Wet CLAY at 24.0 ft; Cardboard and Paper Present			,	
				_	Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.				
				_					
			To the second se	- 30-		,			
	EXAM	Rec.	Rec. Mois-	Rec. Mois- N	E (in.) ture Value (ft.)	Rec. Mois- (in.) Nolus- (in.) Value Gray Brown, Silty CLAY, Little Gravel (CL-ML) Dark Gray, Silty CLAY (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Dark Gray, Silty CLAY (CL-ML) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Gray Brown, Silty CLAY, Little Gravel (CL-ML)	Rec. Mois- I ture Value (ft.) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Dark Gray, Silty CLAY (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML)	Rec. Mois- N Value (ft.) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Dark Gray, Silty CLAY (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY, Little Gravel (CL-ML) BMUNICIPAL WASTE: Wet CLAY at 24.0 ft; Cardboard and Paper Present End of Boring at 24.5 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.	



Time After Drilling

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Depth to Water

Depth to Cave in

LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location **DuPage County, Illinois** Boring No. Job No.

3920.0041 Sheet 1 of 1

Surface Elevation 729.1

Bob

TJK

J\3920\qint\BLACK_ID; CHICAGI

Driller

Logger

TSC

DAP Drill Method 2 1/4" I.D. SSA

Chief

Editor

Rig Mobile

B-57

TB76

Northing: 65.4 -255.4

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SOIL PROPERTIES SAMPLE** VISUAL CLASSIFICATION PID Mois Rec. Depth and Remarks (qa) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY (CL-ML) Gray, Silty CLAY, Little Black Staining, No Waste (CL-ML) 10 End of Boring at 13.0 ft Borehole Backfilled with Drill Cuttings. WATER LEVEL OBSERVATIONS **GENERAL NOTES** 10/14/96 While Drilling ft. Upon Completion of Drilling Start 10/14/96 End



While Drilling

Depth to Water

Depth to Cave in

Time After Drilling

transition may be gradual

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB77 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

732.4

Northing:

GENERAL NOTES

Chief

Editor

10/14/96 End

Drill Method 2 1/4" I.D. SSA

TSC

DAP

Start

Driller

Logger

10/14/96

Bob

TJK

J/3920/gint/BLACK_ID: CHICAGO

Rig Mobile

B-57

87.7

-246.8

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu (ap) Rec. Mois Depth PID and Remarks No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Gray to Gray Brown, Silty, Clayey GRAVEL, Fine Sand (GC-GM) MUNICIPAL WASTE: Shredded Wood, Paper End of Boring at 11.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.

WATER LEVEL OBSERVATIONS

The stratification lines represent the approximate boundary between soil types and the

ft. Upon Completion of Drilling



Time After Drilling

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

Depth to Water

Depth to Cave in

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location 1

DuPage County, Illinois

Boring No. TB78

Job No. 3920.0041 Sheet 1 of 1

Surface Elevation 727.7

Northing: 50.1

Chief

Editor

TSC DAP

Drill Method 2 1/4" I.D. SSA

Driller

Logger

Bob

TJK

J\3920\gint\BLACK_ID: CHICAGO

Rig Mobile

B-57

Easting: -341.2

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-No. Depth PID and Remarks (qa) (tsf) (in.) ture Value (ft.) (ppm) Remarks Gray Brown to Brown, Silty CLAY (CL-ML) Gray Brown, Silty CLAY (CL-ML) Dark Gray, Silty CLAY (CL-ML) End of Boring at 12.0 ft Borehole Backfilled with Drill Cuttings. 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS ft. Upon Completion of Drilling ft. Start 10/14/96 End 10/14/96 While Drilling



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB79 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

729.9

Northing:

73.3 -341.9

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	S	AM	PLE		VISUAL CLASSIFICATION	SOIL PROPERTIES			
No.	Rec.	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks	
No.	A.I		Value		Gray Brown, Silty CLAY (CL-ML) Brown, Fine to Coarse SAND (SP) Gray, Silty CLAY (CL-ML) MUNICIPAL WASTE: Numerous Pieces of Wood, Black Staining, Clothing End of Boring at 7.5 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.	(qa) (tsf)		Remarks	
Tii De De	nile Dr me Aft pth to	er Dr Wate Cave	\ <u>\}</u> illing r in			P Editor	10/14/9 Bob r TJK		



Depth to Water

Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

DuPage County, Illinois

Boring No.

TB80 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

729.1

B-57

DAP

Drill Method 2 1/4" I.D. SSA

Logger

Editor

TJK

J\3920\ojnt\BLACK_ID; CHICAGO

Northing:

76.0

-136.2

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SOIL PROPERTIES SAMPLE VISUAL CLASSIFICATION qu Rec. Mois-Depth PID and Remarks (qa) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Silty CLAY (CL-ML) Gray Brown, Silty CLAY, Little Sand (CL-ML) Gray Silty CLAY, Little Gravel (CL-ML) Gray Brown to Gray, Silty, Clayey GRAVEL (GC-GM) End of Boring at 11.0 ft Borehole Backfilled with Drill Cuttings. 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS 10/15/96 While Drilling ft. Upon Completion of Drilling ft. Start 10/15/96 End Rig Mobile Time After Drilling Driller Chief Bob



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB81 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

730.1

Northing:

90.5

Easting: -143.5

					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5	ooo =	-143	.3	
	S	AM	PLE		VISUAL CLASSIFICATION	1	SOIL PROPERTIES		
No	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks	
				-	Dark Brown, Silty CLAY (CL-ML)				
				_	Brown CLAY (CL)				
				-	Brown, Fine to Coarse SAND and GRAVEL (SP/GP)				
Ž.				- - - - -	Gray, Silty CLAY (CL-ML)				
				-					
				_	Gray Brown, Silty, Clayey GRAVEL (GC-GM)				
				_	Gray, Silty CLAY (CL-ML)				
				_	Wet at 9.0 ft, Waste from 9 to 9.5 ft; Pieces of Plastic and Rubber				
		1		├ ├─ 10─	End of Boring at 9.0 ft				
					Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.				
				_					
				_					
-			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	- 15-	LEVEL OBSERVATIONS	GENERA	NOT	FS	

WATER LEVEL OBSERVATIONS	GENERAL NOTES
Time After Drilling Depth to Water	Start 10/15/96 End 10/15/96 Driller TSC Chief Bob Rig Mobile Logger DAP Editor TJK B-57 Drill Method 2 1/4" I.D. SSA
The stratification lines represent the approximate boundary between soil types and the	WOODS - WELLS IN SURCESS
transition may be gradual.	J\3920\gmt\BLACK_ID: CHICAGO



transition may be gradual

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB82 3920.0041

Job No. Sheet

1 of 1

J/3920/gint/BLACK_ID: CHICAGO

Surface Elevation

726.0

Northing:

49.4

-450.5

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-PID N Depth and Remarks (qa) (ppm) No. (in.) ture Value (ft.) Remarks (tsf) Gray Brown, Silty, Clayey GRAVEL (GC-GM) Gray, Silty CLAY, Little Gravel (CL-ML) Gray, Silty CLAY (CL-ML) Black, Organic, Silty CLAY (CL-ML) Dark Gray Brown, Silty CLAY, No Waste to 13.0 ft (CL-ML) End of Boring at 13.0 ft Borehole Backfilled with Drill Cuttings. 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling Start 10/15/96 End 10/15/96 Rig Mobile Time After Drilling Driller **TSC** Chief Bob Depth to Water DAP **Editor** TJK B-57 Logger Drill Method 2 1/4" I.D. SSA Depth to Cave in The stratification lines represent the approximate boundary between soil types and the



Depth to Water

Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB83

Job No.

3920.0041

Sheet Surface Elevation

1 of 1

727.6

Northing:

72.1 -450.9

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-Ν PID Depth and Remarks (qa) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Gray Brown, Silty CLAY, Little Gravel (CL-ML) Light Brown, Silty SAND and GRAVEL (SM/GM) Gray, Silty, Clayey GRAVEL (GC-GM) MUNICIPAL WASTE: Wood Debris, Chips, Glass End of Boring at 7.5 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. 10 WATER LEVEL OBSERVATIONS **GENERAL NOTES** While Drilling ft. Upon Completion of Drilling ft. Start 10/15/96 End 10/15/96 Time After Drilling Rig Mobile Driller **TSC** Chief Bob

Logger

DAP

Drill Method 2 1/4" I.D. SSA

Editor

TJK

J/3920\gint\BLACK_ID: CHICAGO

B-57



Depth to Cave in

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

LOG OF TEST BORING

Project Bl

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB84

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

724.6

Northing:

Drill Method 2 1/4" I.D. SSA

J\3920\aint\BLACK_ID; CHICAGO

53.2 -529 4

-529.4 Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 591-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-Ν PID Depth and Remarks (qa) (in.) (ft.) (ppm) Remarks No. ture Value (tsf) **ASPHALT** Gray Brown, Silty CLAY, Some Fine to Coarse Gravel (CL-ML) Gray, Silty CLAY (CL-ML) Black Organic CLAY (CL) Gray Brown, Silty, Clayey GRAVEL (GC-GM) Gray Silty CLAY (CL-ML) Dark Gray Brown, Silty CLAY (CL-ML) End of Boring at 12.0 ft Borehole Backfilled with Drill Cuttings. WATER LEVEL OBSERVATIONS **GENERAL NOTES** 10/15/96 End While Drilling ft. Upon Completion of Drilling 10/15/96 ft. Start Bob Rig Mobile Time After Drilling Chief Driller TSC Depth to Water DAP Editor **TJK** B-57 Logger



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB85 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

727.9

Northing:

77.1

-531.6

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-Depth PID and Remarks (qa) (in.) ture Value (ft.) (ppm) Remarks (tsf) Light Gray Brown, Silty CLAY (CL-ML) Brown, Silty, Clayey, Fine SAND (SC-SM) Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Dark Gray Brownm, Silty CLAY (CL-ML) MUNICIPAL WASTE: Pieces of Shredded Wood End of Boring at 8.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. 10-WATER LEVEL OBSERVATIONS **GENERAL NOTES** ft. Upon Completion of Drilling 10/15/96 End 10/15/96 While Drilling Start Time After Drilling Chief Bob Rig Mobile Driller TSC Editor **TJK** B-57 Depth to Water Logger DAP Drill Method 2 1/4" I.D. SSA Depth to Cave in The stratification lines represent the approximate boundary between soil types and the transition may be gradual J\3920\aint\BLACK_ID; CHICAGO



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B

BORING LOGS

Cap Continuity/Characterization Logs Extraction Well Logs CAP CONTINUITY/CHARACTERIZATION LOGS



Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB01

Job No. Sheet

Drill Method 2 1/4" I.D. HSA

J\3920\oint\BLACK_ID; CHICAGO

3920.0041 1 of 1

. . .

Surface Elevation

Northing:

1181.1 -1358 3

Easting: -1358.3 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-PID Ν Depth and Remarks (qa) (in.) ture Value (ft.) (ppm) Remarks No. (tsf) 2" Brown, Silty CLAY (TOPSOIL) 12 32 M Dense to Very Dense, Brown, Fine to Coarse SAND and GRAVEL, Little Clay and Silt (SP/GP) Dense to Very Dense, Brown, Fine to Coarse 12 2 M 51 SAND and GRAVEL (SP/GP) Dense to Very Dense, Orange-Brown, Fine to 3 18 M/W 58 Coarse SAND and GRAVEL. Trace to Little Silt and Clay (SP/GP) 4 8 W 50/6' 2.5 Very Stiff, Gray, Silty CLAY, Some Fine to Coarse Gravel (CL-ML) MUNICIPAL WASTE: Pices of Cloth, Wire, i we and Wood End of Boring at 10.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. **GENERAL NOTES** WATER LEVEL OBSERVATIONS ft. Upon Completion of Drilling \(\frac{1}{2}\) ft. Start 10/9/96 End 10/9/96 While Drilling **TSC** Bob Rig Mobile Time After Drilling Driller Chief DAP TJK B-57 Logger Editor Depth to Water



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB01A

Job No.

3920.0041 1 of 1

Sheet 1 o
Surface Elevation

730.7

Northing:

1215.0 -1265.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	SAMPLE					VISUAL CLASSIFICATION					PERTIES
No.	121	Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
1	16	М	17	_		Very Stiff, Dark Brown to Black, Organic CLAY (OL) Very Stiff, Brown, Silty CLAY, Little to So Fine to Coarse Gravel (CL-ML)	ome,		3.0- 4.0		
2	16	M	14	-		Medium Stiff, Brown and Gray, Silty CLA			0.5-		
				_		Little Fine to Coarse Sand and Gravel (CL-Loose, Light Brown, Coarse Gravel at 3.6 f			1.0		
3	8	М	9	- - - 5-					<u></u>		
				_	4444	End of Boring at 6.0 ft					
				-		Borehole Backfilled with Drill Cuttings.					
				_ 10_	-						
				- 15-							
			W	1		EVEL OBSERVATIONS		GE	NER/	AL NOT	ES
Ti De De	hile Dime Af epth to epth to The stra	ter Di Wate Cave	rilling r in				Driller Logger	TS DA	P Edit	ef Bob tor TJK I.D. HSA	Rig Mobile B-57



Depth to Water Depth to Cave in

LOG OF TEST BORING

Project Black

Blackwell Landfill - NPL Site

Location

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

DuPage County, Illinois

Boring No.

TB01B 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

737.5

Northing:

1137.5

Easting:

Logger DAP Editor TJK Drill Method 2 1/4" I.D. HSA

B-57

J\3920\gint\BLACK_ID; CHICAGO

-1445.7

						00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5	000	asung.		
			PLE			VISUAL CLASSIFICATION				ERTIES
No.	(in.)		Value	Depth (ft.)		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
1	20	M	50	_		Dark Brown, Silty CLAY (CL-ML) Medium Dense to Very Dense, Brown, Fine to Coarse SAND and GRAVEL, Little Silt (SP-SM/GP-GM)				·-·
2	18	М	41	-		Medium Dense to Very Dense, Brown, Fine to Coarse SAND and GRAVEL, Trace Silt and Clay (SP/GP) Very Stiff, Brown, Silty CLAY, Little Fine to Coarse Gravel (CL-ML)				
3	18	М	25	- - 5-		Very Stiff, Gray, Silty CLAY, Some Fine to Coarse Gravel (CL-ML)		3.0		
						MUNICIPAL WASTE: Paper, Plastic and Wood End of Boring at 6.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.				
				- - - - - - -						
						_			. NOT	
	hile Di ime Af				π.		TSC	P6 End Chief	10/11/9 Bob	o Rig Mobile



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB02

Job No.

3920.0041

Sheet

1 of 1

Surface Elevation Northing:

1180.2 -957.6

					i 21	100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Easting:	Easting: -957.6				
	S	ΑM	PLE			VISUAL CLASSIFICATION		PROP	ERTIES	\		
No.		Mois- ture	N Value	Depth (ft.)	1	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks			
1	18	M	20		2222	Dark Brown TOPSOIL				_		
			:	_		Very Stiff, Brown to Gray Brown, Silty CLAY, Little Fine to Coarse Sand and Gravel (CL-ML)						
2	18	М	12	-		Very Stiff, Brown, Silty CLAY, Little Fine to Coarse Sand and Gravel (CL-ML)						
				_		Medium Dense, Brown, Fine to Coarse SAND	>4.0					
3	20	M	43	- - - 5-		and GRAVEL (SP/GP) Hard, Gray, Silty CLAY, Little Fine to Coarse Sand and Gravel (CL-ML)	>4.0					
				-		Hard, Clayey SILT (ML)			· · · · · · · · · · · · · · · · · · ·			
				_		End of Boring at 6.0 ft						
				_		Borehole Backfilled with Drill Cuttings.						
				_								
				<u> </u>								
				_ 10-								
				-								
				_								
				_								
				- - 15-								
	Ll	1	W	1	R I	LEVEL OBSERVATIONS G	ENERA	L NOTI	ES	_		
Tir De De	nile Di me Aft pth to pth to	er Dr Wate Cave	<u></u> illing r in		_ft.	Upon Completion of Drillingft. Start 10/ Driller T Logger D Drill Metho	9/96 End SC Chie AP Edito	10/9/96 or Bob				
1	The strate	ification may b	n lines se grad	represen	it the	approximate boundary between soil types and the		_J\3920\gint\BLA(CK ID. CHICAGO	/		



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB03

Job No.

3920.0041 1 of 1

Sheet Surface Elevation

Northing: Easting:

981.3 -1357.4

					1	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708)							
<u> </u>			PLE			VISUAL CLASSIFICATIO	N				PERTIES		
No.	Rec.	Mois- ture	N Value	Depth (ft.)		and Remarks			· qu (ap)	PID (ppm)	Remarks		
1	16	М	39			Brown, Silty CLAY, Little Fine to Coarse and Gravel (CL-ML) Dense, Brown, Silty CLAY, Little Sand, Gravel (CL-ML)			(tsf) 				
2	6	М	66/8"										
3	12	М	42	5		SILT (ML)							
4	10	М	76	~ ~		Dense to Very Dense, Brown, Fine to Coa SAND and GRAVEL, Trace Clay and Sile (SP/GP)							
5	14	М	34	-							J		
6	12	М		- 10		MUNICIPAL WASTE: Clay Interspersed Paper	with						
				- - - - 15-		End of Boring at 12.0 ft Borehole Backfilled with Bentonite Hole F 1 ft Above Waste - Drill Cutting to Surface							
		<u> </u>	W		1 1	EVEL OBSERVATIONS		GE	NERA	NOT	ES		
Tin De De	nile Di ne Aft pth to pth to The stra	er Dr Wate Cave	illing r in			Upon Completion of Drillingft. approximate boundary between soil types and the	Driller Logger	TSC DAI		r TJK .D. HSA	Rig Mobile B-57		



Depth to Water

Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois Boring No.

TB03A

Job No. Sheet

3920.0041 1 of 1

Surface Elevation

741.2

Northing: Easting:

1080.0

-1385.6 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu PID Rec. Mois-N Depth and Remarks (qa) (in.) ture Value (ppm) Remarks No. (ft.) (tsf) Brown, Silty CLAY (CL-ML) 16 57 M Medium Dense to Dense, Brown, Fine to Coarse SAND and GRAVEL (SP/GP) 2 62 6 M 46 3 12 M Medium Dense to Dense, Light Brown, Fine to Coarse SAND and GRAVEL, Trace Silt and Clay (SP/GP) Medium Dense to Dense, Brown, Fine to 4 M Coarse SAND and GRAVEL (SP/GP) Medium Dense to Dense, Clayey SAND and GRAVEL from 7.0 to 7.3 ft (SC/GC) MUNICIPAL WASTE 5 M 18 End of Boring at 10.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. 15 WATER LEVEL OBSERVATIONS **GENERAL NOTES** ft. Upon Completion of Drilling Start 10/10/96 End While Drilling ft. 10/10/96 Time After Drilling TSC Chief Bob Rig Mobile

Driller

Logger

DAP

Drill Method 2 1/4" I.D. HSA

Editor

TJK

J\3920\qint\BLACK ID: CHICAGI

B-57



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. Job No.

TB03B 3920.0041

Sheet

1 of 1

Surface Elevation

744.9

Northing:

987.8

		W	<i>y</i>		2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000				-1248	3.4
	S	AM	PLE			VISUAL CLASSIFICATION			PROP	ERTIES
No.	34 3	Mois- ture	N Value	Depth (ft.)		and Remarks	i	.qu (qa) (tsf)	PID (ppm)	Remarks
1	10	M	77		222	Dark Brown, Silty CLAY (CL-ML)	T			
				_		Dense to Very Dense, Brown, Fine to Coarse SAND and GRAVEL, Trace Clay and Silt (SP/GP)				
2	16	M	44	_						
3	12	М	103	5						
4	16	М	44	- - -		Olive Gray/Brown, Silty CLAY, Some Fine to				
5	12	M/W	50/ 2"	- -		Coarse Sand and Gravel (CL-ML)				· ·
				- 10- - - -		MUNICIPAL WASTE: Olive Gray, Clayey, Very Coarse SAND and GRAVEL, Pieces of wood and Paper End of Boring at 11.0 ft			-	
						Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface.				
-			W	- 15- ATE	1 1	EVEL OBSERVATIONS	GE	NERAI	NOT	ES
Tir De De	hile Di me Aft epth to epth to The stra transition	er Dr Wate Cave	rilling r in on lines	represer		Driller Logger	TS DA	AP Edito: 2 1/4" I.	r TJK .D. HSA	Rig Mobile B-57



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB03C

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

750.6

Northing: Easting:

880.6 -1349.1

	S	AM	PLE		OO Corporate Drive, Addison, Illinois 60101, TEL. (7 VISUAL CLASSIFICATION	1	PROF	PERTIES	
No.	LEI	Mois- ture	N Value	Depth (ft.)	and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
1	12	M	74/8"	_	Dark Brown, Silty CLAY (CL-ML)				
				-	Very Dense, Brown, Fine to Coarse SAND GRAVEL, Trace Silt and Clay (SP/GP)	and			
2 _	18	M	56	-					
3	16	М	65	_ _ 5- -					
4	16	М	66	-	Very Dense, GRAVEL (GP)				
5	20	M	56		Very Dense, Brown, Fine to Coarse SAND GRAVEL (SP/GP)	and			i
 ~				_	Very Dense, Gray, Fine to Coarse SAND, Little Fine to Coarse Gravel (SP)				
7	16	M	15	10-	Grayish Green and Brown CLAY, Little Fit Coarse Sand and Gravel (CL)				
				_	MUNICIPAL WASTE: Wood, Glass, Pape Interspersed with Clay	r,			-
				 - 	End of Boring at 12.0 ft	ng to			
				_	Borehole Backfilled with Bentonite Hole Plu 1 ft Above Waste - Drill Cutting to Surface				
	11	<u></u>	W	ATE	LEVEL OBSERVATIONS	G	ENERA	L NOT	TES
Ti D	hile Dime Af	ter Di Wate	i <u>¥</u> rilling r		Upon Completion of Drilling ft. S	Start 10/1 Oriller T	10/96 End SC Chier AP Edito	10/10/ f Bob or TJK	96 Rig Mobile B-57

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

DuPage County, Illinois

Boring No.

TB03D 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

748.1

Northing:

931.6

SAMPLE Rec. Mois- N Depth	ISUAL CLASSIFICATION and Remarks SOIL PROPERTIES
Rec. Mois- N Depth	and Domonto
No. E (in.) ture Value (ft.)	(tsf) (ppm) Remarks
Mediu	rown, Silty CLAY (TOPSOIL) n Dense, Brown, Fine to Coarse SAND RAVEL, Trace Silt and Clay (SP/GP)
(CL) Mediu (GP)	m Dense, Brown, Sandy, Gravelly CLAY 1.0 m Dense, Gray, Fine to Coarse GRAVEL m Dense, Brown, Sandy, Gravelly CLAY
3 20 M 19 (CL) Mediu	m Dense, Brown, Clayey SAND and EL (SC/GC) m Dense, Dark Brown, Gravelly CLAY
4 20 M 16 Mediu Fine to Mediu GRAN	m Dense, Brown, Silty CLAY, Some Coarse Gravel (CL-ML) m Dense, Brown, Clayey SAND and EL (SC/GC) m Dense, Dark Brown CLAY, Some
Grave Very Very Indee Medit (SC)	
- - - - - 15-	OBSERVATIONS GENERAL NOTES
While Drillingft. Upon C Time After Drilling ft. Upon C Depth to Water Depth to Cave in The stratification lines represent the approximation may be gradual.	ompletion of Drilling ft. Start 10/11/96 End 10/11/96 Driller TSC Chief Bob Rig Mobile Logger DAP Editor TJK B-57 Drill Method 2 1/4" I.D. HSA



Depth to Water

Depth to Cave in

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB04

Job No.

3920.0041

Sheet 1 of 1
Surface Elevation

Northing: 980.4

Easting:

-1157.5

TJK

J\3920\gint\BLACK_ID: CHICAGO

B-57

Logger

DAP

Drill Method 2 1/4" I.D. HSA

Editor

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SOIL PROPERTIES SAMPLE VISUAL CLASSIFICATION Rec. Mois-PID Depth and Remarks (qa) No. 🖺 (in.) Remarks ture (ft.) (ppm) Value (tsf) Dark Brown, Silty CLAY (TOPSOIL) 20 $\overline{\mathbf{M}}$ 40 00 Dark Brown, Silty CLAY (CL-ML) Dense, Brown, Fine to Coarse SAND and GRAVEL (SP/GP) Hard, Gray Silty CLAY, Trace Fine to Coarse 22 22 >4.0 2 M Sand and Gravel (CL-ML) Medium Dense, Fine to Coarse SAND and GRAVEL (SP/GP) 24 >4.0 M Hard, Gray, Silty CLAY, Little to Some, Fine to Coarse Gravel (CL-ML) 2 in. Stone from 4.6 to 4.8 ft End of Boring at 6.0 ft Borehole Backfilled with Drill Cuttings. 10-**GENERAL NOTES** WATER LEVEL OBSERVATIONS ft. Upon Completion of Drilling 10/9/96 End 10/9/96 While Drilling Start Bob Time After Drilling Driller **TSC** Chief Rig Mobile



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

DuPage County, Illinois

Boring No.

TB05

Job No.

3920.0041

Sheet Surface Elevation

1 of 1

Northing:

978.6

-957.6

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	SAMPLE				VISUAL CLASSIFICATION	ON SOIL PROPERTIES				
No.		Mois-	N Value	Depth (ft.)	and Remarks	qu (qa)	PID (ppm)	Remarks		
1	20	M	28	(,,,,	Dark Brown, Clayey TOPSOIL	(tsf) 00	(ppin)	TOTION		
-				-	Brown, Silty CLAY, Little Fine Sand (CL-ML)					
2	22	М	22	-	Hard, Brown, Silty CLAY, Trace to Little, Fine to Coarse Sand and Fine Gravel (CL-ML)	>4.0		J		
3	22	M	19			>4.0				
		l		 5 	Hard, Gray, Silty CLAY, Trace to Little, Fine to Coarse Sand and Gravel (CL-ML)					
				-	End of Boring at 6.0 ft					
				_	Borehole Backfilled with Drill Cuttings.					
				_						
				_						
!				-						
				— 10 —						
				_						
				_						
										
				_						
				_						
			101	— 15-	DIEVEL OPERMATIONS	TAICE A	NOT!			
							L NOTI			
Tin De De	nile Dr ne Aft pth to pth to he strat	er Dr Wate Cave	illing r in on lines	represen	ft. Upon Completion of Drilling ft. Start 10/9/Driller TSC Logger DA Drill Method	P Edito	r TJK	Rig Mobile B-57		
<u></u>	transition may be gradual.									



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB06

Job No.

3920.0041

Sheet Surface Elevation

1 of 1

Northing:

780.6

Easting:

-1357.9

\geq					21	OO Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-	5000				
		,	PLE	,		VISUAL CLASSIFICATION	N	5			ERTIES	
No.	N.	Mois- ture	N Value	Depth (ft.)		and Remarks			qu qa) tsf)	PID (ppm)	Remarks	
1	20	M	46			Brown, Silty CLAY (TOPSOIL)	4					
						Brown, Fine to Coarse SAND and GRAVE (SP/GP)	EL					
2	22	M	44	 -	3:							
									2.5			
				-		Very Stiff, Brown CLAY, Little Fine to Co	parse					
3	20	M	33	-		Sand and Gravel (CL)	7	-	2.5-			
				}		Very Stiff, Brown, Silty CLAY, Little Fine	e to	1	3.0	}		
				- 5-		Coarse Sand and Gravel (CL-ML)						
				}	222	Very Stiff GRAVEL, Some Clay (GC) Very Stiff, Dark Gray to Black, Silty CLA	v					
4	22	М	16		删	(CL-ML)			2.0-			
				}		Very Stiff, Black, Organic CLAY (OL)	/		2.5	ļ		
				-								
			}	-		End of Boring at 8.0 ft					•	
 				- -		Borehole Backfilled with Drill Cuttings.						
				10-								
				_		•						
			}	-						-		
				-								
				-								
		ĺ								Í		
										ļ		
		L	100	- 15-		EVEL OBSERVATIONS		CEN	EDAI	NOT	EC	
-	n :1 -5	••••					0.			NOT		
T	/hile Diime Afi epth to	ter Di Wate	rilling r		tt.		Start Driller Logger Drill Met	10/9/96 TSC DAP	Chief Editor	10/9/96 Bob TJK	Rig Mobile B-57	
Depth to Cave in The stratification lines represent the approximate boundaries.							שווו ואופי	uiou 2			,	
\	transitio	n may	he grad	ual.			J/3920/gint/BLACK_ID; CHICAGO					



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB07 3920.0041

Job No.

1 of 1

Sheet Surface Elevation

Northing:

780.8

Easting: -1157.9

_					21	00 Corporate Drive, Addison, Illinois 60101, TEL.	(708) 691	-5000		·	
	SAMPLE Rec. Mois- N Dept					VISUAL CLASSIFICATIO	N			PROP	ERTIES
No.	A.	1	N Value	Depth (ft.)		and Remarks			(ap)	PID (ppm)	Remarks
1	22	M	27	,,,,,,		Dark Brown, Silty TOPSOIL			(tsf) 		
				_		Hard, Gray, Silty CLAY, Little to Some, to Coarse Gravel (CL-ML)	Fine				
2	22	M	24	_		Hard, Gray, Silty CLAY (CL-ML)			>4,0		
				-		Medium Dense, Brown, Fine to Coarse Sa and GRAVEL, Some CLAY (GC-GM)	AND				J
3	16	М	30	- - 5-		Very Stiff, Dark Brown to Black, Silty CI Little Fine to Coarse Gravel, Trace Organ 5.3 ft (CL-ML)			3.0- 2.5		
						Medium Dense, Brown, Fine to Coarse Sa and GRAVEL (SP/GP)	AND				
				_		End of Boring at 6.0 ft					
				_		Borehole Backfilled with Drill Cuttings.					
				_							
				_ 10_							<u> </u>
				_							
				-							
				_							
				_ 15-	1						
			W	ATE	RL	EVEL OBSERVATIONS		GEN	ERAL	NOT	ES
Tir De De	nile Dane After the pth to	er Dr Wate Cave	illing r in			Upon Completion of Drillingft. approximate boundary between soil types and the	Start Driller Logger Drill Me	10/9/96 TSC DAP ethod 2	Chief Editor		Rig Mobile B-57
	i ne stra ransitio	n may l	on ilines	lual.		approximate boundary between son types and the				\3920\gint\BLA(CK ID: CHICAGO



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB08 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

Northing:

780.6 -958.5

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	S	ΑM	PLE		VISUAL CLASSI	FICATION	ON SOIL PROPERTIES				
No.	Rec.	Mois- ture	N Value	Depth (ft.)	and Rema		qu (qa) (tsf)		Remarks		
1	22	М	75	_	Dark Brown, Silty CLAY (T	•					
				-	Very Dense, Brown, Fine to Little to Some, Fine to Coars (GM)	e Sand, Some Silt					
2	22	М	62	-	Very Dense, Brown, Fine to GRAVEL (SP/GP) Very Stiff, Gray to Gray Bro						
3	22	M	18	_	to Some, Fine to Coarse Sand		3.0-				
				- 5- -	Hard, Brown CLAY, Trace t Coarse Gravel, Trace Fine S		>4.0	0			
4	18	М	88/9"	_	Very Stiff, Gray, Silty CLAY Fine to Coarse Gravel (CL-M		3.0				
				_	Very Dense, Gray Brown, Fi GRAVEL, Some Fine to Coa Little Clay (GP)						
				<u> </u>	End of Boring a	t 8.0 ft					
				- - -	Borehole Backfilled with Dri	1 Cuttings.					
				_ _ _ 15-	LEVEL OBOSEVATIO	NO.	OFNES				
				AIL	LEVEL OBSERVATIO	_		RAL NO			
Tir De De	hile Di me Aft pth to pth to The stra	er Dr Wate Cave	rilling r in on lines	represei	Upon Completion of Drilling e approximate boundary between soil type	Driller Logger Drill Me		hief Bol ditor TJI 4" I.D. HSA	b Rig Mobile B-57		
_1	ransitio	n may	ne grad	ual.				الارموا 3920ر	LACK ID; CHICAGO		



Time After Drilling

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Depth to Water

Depth to Cave in

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB09

Job No.

3920.0041

Sheet

1 of 1

Surface Elevation

Northing:

579.0

Easting: -957.6

\					21	00 Corporate Drive, Addison, Illinois 60101, TEL. (7	708) 691-5000			
	_		PLE	,		VISUAL CLASSIFICATION	V		PROPE	RTIES
No.	Rec.	Mois- ture	N Value	Depth (ft.)		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
1	16	М	38			Brown to Dark Brown, Silty CLAY, Some Organics (ML) Gravel at 1.2 to 1.4 ft				
2	18	М	25	-		Gray Brown to Gray, Silty CLAY, Trace to Little, Fine to Coarse Sand and Gravel (CL-ML)	D			_
3	16	M		- - 5-		Gray, Silty CLAY, Little, Fine to Coarse S and Gravel (CL-ML)	and			
				_		End of Boring at 6.0 ft				
				- - - 10-		Borehole Backfilled with Drill Cuttings.				
			W	- 15- ATF	R I	EVEL OBSERVATIONS	GF	NERAI	NOTES	<u> </u>
w	hile Di	illing						/96 End	10/7/96	

Driller

TSC

Logger DAP Editor

Drill Method 2 1/4" I.D. HSA

Chief

Bob

TJK

J/3920\gint\BLACK_ID; CHICAGO

Rig Mobile

B-57



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

TB10

Job No. Sheet 3920.0041 1 of 1

Surface Elevation
Northing: 579.9

Easting:

-756.8

					21	00 Corporate Drive, Addison, Illinois 60101, TEL. (7	708) 691-	5000		. <u> </u>		
	S	ΑM	PLE			VISUAL CLASSIFICATION	V		SOIL PROPER			ERTIES
No.		Mois- ture	N Value	Depth (ft.)		and Remarks			q (q (ts	a)	PID (ppm)	Remarks
1	10	М	10/0"	_		Dark Brown to Brown, Silty CLAY (CL-M	IL)		-	-		
						Cobble at 1.0 ft						
2	20	M	17	-		Hard, Gray and Brown, Silty CLAY, Some Gravel, Little Sand (CL-ML)	•		>4	1.0		
				-		Hard, Gray, Silty CLAY, Trace Fine to Co Gravel (CL-ML)	oarse					
3	20	M	56	_					>4	1.0		
				5		Gravel Zone from 4.8 to 5.3 ft						
				_		Gray, Silty CLAY, Some Gravel (CL-ML)						
4	16	M	11			Waste (Black Stained); Pieces of Wood			N	A		
				-								
				<u>-</u>	器							
				_		End of Boring at 8.0 ft						
						Borehole Backfilled with Bentonite Hole Plu 1 ft Above Waste - Drill Cutting to Surface				\ 		
				10 -								
				_								
				_								
											1	
				_								
				-								
			W	- 15- Δ TF	R I	EVEL OBSERVATIONS		GF	NF	RΔI	NOT	FS
WI	nile Dr	illing					Start	10/7			10/7/9	
Tir	ne Aft	er Di	illing				Driller	TS	C	Chief	Bob	Rig Mobile
	pth to pth to						Logger Drill Me	DA thod		Editor /4" I.		
\ 1		ification	n lines	represen	t the	approximate boundary between soil types and the						ACK ID, CHICAGO



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

DuPage County, Illinois

Boring No.

TB10A

Job No. Sheet

3920.0041 1 of 1

J\3920\gint\BLACK_ID: CHICAGO

Surface Elevation

Northing:

		W	<i>y</i>		1 21	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-	ا -5000	Easting: _		
	S	AM	PLE			VISUAL CLASSIFICATION			PROF	PERTIES
No.	4	Mois- ture	N Value	Depth (ft.)		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
						Brown, Silty CLAY, Little Fine to Coarse Sand and Gravel Followed by Gravel (CL-ML)				
				 - -		Gray, Silty CLAY, Trace Fine to Coarse Gravel (CL-ML)				
2	16	М	29	_			-	>4.0		
				_		Clayey GRAVEL (GC)				
3	10	M				Gray, Silty CLAY, Trace Sand and Gravel (CL-ML)	-	>4.0		
4		M		5-		Refusal at 5.0 ft				
				_		Gray Brown, Silty CLAY, Little Fine to Coarse Gravel (CL-ML) Pieces of Wood at 6.5 ft				
					иии	End of Boring at 7.0 ft	-			
				-		Borehole Backfilled with Drill Cuttings.				
				10-	-					
				-						
				-			:			
				-						
			W	- 15- /ATE		EVEL OBSERVATIONS	GE	NERAI	. NOT	ES
Ti ₁	hile Di me Af epth to epth to	ter Di Wate	g <u>¥</u> rilling er			Upon Completion of Drillingft. Start Driller Logger	10/7/ TSO DA	/96 End C Chief	10/7/9 Bob	



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB11

Job No. Sheet 3920.0041 1 of 1

Surface Elevation

EVAUOII EOA

Northing:

580.8

Easting: -557.8

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION au PID Rec. Mois-Ν Depth and Remarks (qa) No. E (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Silty CLAY, Light Gray Brown, M 15 Silty CLAY, Little Gravel (CL-ML) 2 22 M 22 >4.0 Gray, Silty CLAY, Trace Fine to Coarse Gravel (CL-ML) Thin Sand Seam at 3.4 ft Gray, Silty CLAY, Trace to Little, Fine to 3 16 M 22 Coarse Gravel and Sand (CL-ML) End of Boring at 6.0 ft Borehole Backfilled with Drill Cuttings. 10 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS ft. Upon Completion of Drilling 10/7/96 End 10/7/96 While Drilling Start ft. Chief Bob Rig Mobile Time After Drilling Driller **TSC** DAP **TJK** B-57 Depth to Water Editor Logger Drill Method 2 1/4" I.D. HSA Depth to Cave in The stratification lines represent the approximate boundary between soil types and the J/3920 oint BLACK ID, CHICAGO



While Drilling

Depth to Water

Depth to Cave in

Time After Drilling

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB12

Job No.

3920.0041

Rig Mobile

B-57

Sheet

1 of 1

Surface Elevation

Northing:

580.8 -358.8

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-Depth PID and Remarks (qa) No. (in.) (ft.) ture Value (ppm) Remarks (tsf) Dark Brown, Silty CLAY, Little Fine Sand 15 M 44 NA (CL-ML) CLAY, Some Fine to Coarse Sand and Gravel 22 2 M 32 \overline{NA} Brown CLAY, Some Sand to 5.2 ft 3 22 M 20 NA >4.0Hard, Gray Silty CLAY, Trace to Little, Fine to 2.0 Coarse Gravel (CL-ML) 4 22 16 3.5 M 22 M 4.0 Hard, Brown, Silty CLAY, Little Fine to >4.0Coarse Gravel (CL-ML) End of Boring at 10.0 ft Borehole Backfilled with Bentonite Hole Plug to 1 ft Above Waste - Drill Cutting to Surface. WATER LEVEL OBSERVATIONS GENERAL NOTES ft. Upon Completion of Drilling \mathbf{Y} Start 10/7/96 End 10/7/96

Dri!ler

Logger

TSC

DAP

Drill Method 2 1/4" I.D. HSA

Chief

Editor

Bob

TJK

J/3920/gint/BLACK ID: CHICAGO



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location DuPage County, Illinois Boring No.

TB13

Job No. Sheet

3920.0041 1 of 1

Surface Elevation 378.6

Northing:

Easting: -957.8

_					21	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691	5000			
	S	AM	PLE			VISUAL CLASSIFICATION	N		ERTIES		
No.	MI.	Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
1	20	M	25	_		Stiff to Hard, Dark Brown, Silty CLAY, F Sand (TOPSOIL) Stiff to Hard, Brown to Blue Gray, Silty CLAY, Trace to Little, Fine to Coarse San Gravel (CL-ML)			>4.0		
2	18	М	9	-		Glaver (CE IVIE)			>4.0- 1.5		
3	20	M/W	10	 5		Stiff to Very Stiff, Gray, Silty CLAY, Interspersed Seams of Silty Fine to Coarse (CL-ML)	Sand		3.0- 1.5		
4	22	М	14			Hard, Gray, Silty CLAY, Trace to Little, I to Coarse Sand and Gravel (CL-ML)	Fine		4.0- >4.0		
						End of Boring at 8.0 ft					
				10-		Borehole Backfilled with Drill Cuttings.					
	Ц	<u> </u>	W		RL	EVEL OBSERVATIONS		GE	NER/	L NOT	ES
Ti De	hile Dome After to to the stransition	ter Dr Water Cave	illing r in	represen			Start Driller Logger Drill Me	TSC DAF	Edit	ef Bob or TJK I.D. HSA	Rig Mobile B-57



Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No. Job No.

TB14 3920.0041

Sheet

Drill Method 2 1/4" I.D. HSA

J/3920/gint/BLACK_ID: CHICAGO

1 of 1

Surface Elevation Northing:

381.0

Easting:

-757.7

\	_					210	O Corporate Drive, Addison, Illinois 60101, TEL. (7	708) 691-5	000	Lasung.	-/3/	
			AM	PLE			VISUAL CLASSIFICATION	N			PROP	ERTIES
No	. E	Rec. (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
1		18	М	38			Brown to Gray Brown, Silty CLAY, Little to Coarse Sand and Gravel (CL-ML)	Fine		>4.0		
2		20	M	50	-		Brown, Fine to Coarse SAND and GRAVE (SP/GP)	EL				·
3		18	М	58	- - - 5-		Some Small Cobbles Present					
4		20	М	68	-							
5		14	M	40	-							
6		18	М	28	10- - 		Gray Brown to Gray, Silty CLAY, Little Fito Coarse Sand and Gravel (CL-ML)	ine		>4.0		
7		22	М	19						4.0- >4.0		
					- - 15-	! 1	Borehole Backfilled with Drill Cuttings			MEDA	NOT	
	18 M 58 Some Small Cobbles Present											
1	Γim	ie Afi	er Di	illing		ft.		Driller	TSO	C Chief	Bob	Rig Mobile



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

The stratification lines represent the approximate boundary between soil types and the

transition may be gradual

DuPage County, Illinois

Boring No. Job No.

TB15 3920.0041

Sheet

1 of 1

Surface Elevation

381.9

Northing:

-557.8

J\3920\aint\BLACK_ID; CHICAGO

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-PID Depth and Remarks (qa) (ft.) (in.) ture Value (ppm) Remarks (tsf) 18 M 14 Dark Brown, Silty CLAY (TOPSOIL) Brown, Clayey SAND and GRAVEL (SC/GC) 2 20 24 Gray, Silty CLAY, Little to Some, Fine to M 4.0 Coarse Sand and Gravel (CL-ML) 3 20 M 15 Gray, Silty CLAY, Trace to Little, Fine to 3.0 Coarse Sand and Gravel, Small Piece of Glass and Rubber (CL-ML) **Black Staining Present** 4 18 M 16 3.0->4.0 Sand Seam at 8.5 to 8.7 ft 5 18 Hard, Gray Brown, Silty CLAY, Some Coarse >4.0 M Gravel, Little Coarse Sand (CL-ML) End of Boring at 10.0 at Borehole Backfilled with Drill Cuttings. 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS While Drilling ft. Upon Completion of Drilling 10/7/96 End 10/7/96 Start Time After Drilling TSC Chief Bob Rig Mobile Driller Depth to Water DAP Editor **TJK** B-57 Logger Drill Method 2 1/4" I.D. HSA Depth to Cave in



transition may be gradual.

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB16 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

Northing:

381.9

Easting: -357.9

_					VISUAL CLASSIFICATION and Remarks Dark Brown, Clayey TOPSOIL Dark Brown Clayey TOPSOIL SOIL PROPERTIES Qu (qa) (pp) (tef) (tef) (ppm) (tef) Remarks Dark Brown Clayey TOPSOIL ATER LEVEL OBSERVATIONS ft. Upon Completion of Drilling ft. Start Dark Bob Rig Mobile Logger DAP Editor TJK B-57															
			PLE			V	ISU	AL (CLA	SS	IFIC	ATI	10	V					PERT	TIES
No.		Mois-	N Value					an	d R	ema	arks	ı				((ap		Re	marks
1	14	M	33		D D	ark E	Brown,	, Clay	ey To	OPSC)IL									
1							•							/						
																		i i		
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1																				
	 				1334		•								_					
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																			•	
		L	W	ATE	R LEV	/EL	OB:	SER	VA.	TIO	NS				GE	I Ene	ERA	L NOT	ES	
w	hile D	rilling											ft. S	Start		_				
Ti	me Af	ter Di	illing		Op]	Driller	TS	C	Chief	f B ob	Rig	
	epth to epth to				·		-							Logger Drill M				r TJK .D. HSA		B-57
					t the anne	ovima	ta have	danı be	*******	<u> </u>		1 the	'	J 111 1V	i Çu IVU		-1-4 I	110/1	•	



transition may be gradual.

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB17

Job No. Sheet 3920.0041 1 of 1

J\3920\ank\BLACK_ID_CHICAGO

Surface Elevation

Northing:

180.6

Easting: -757.9

_					21	00 Corporate Drive, Addison, Illinois 60101, TEL. (7)	781 691-2000	· -				
	S	AM	PLE			VISUAL CLASSIFICATION]	SOIL PROPERTIES				
No.		Mois- ture	N Value	Depth (ft.)		and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks		
1	20	M	16			Dark Brown to Black CLAY (TOPSOIL)		1(0.7				
				_		Hard, Gray Brown, Silty CLAY, Trace Fine Coarse Sand and Gravel, Organics (CL-ML)	e to	>4.0				
2	22	М	19	-				>4.0				
				_		End of Boring at 4.0 ft						
				- 5-		Borehole Backfilled with Drill Cuttings.						
			W	- - - - - - - - - - - - - - - - - - -	RI	EVEL OBSERVATIONS	GI	NERA	L NOT	ES		
	hile D		¥			Upon Completion of Drilling ₹ ft. S	tart 10/9	/96 End	10/9/9	6		
De De	me Aforth to	Wate Cave	r in				Oriller TS Logger DA Orill Method	P Edit		Rig Mobile B-57		



Depth to Water

Depth to Cave in

transition may be gradual

The stratification lines represent the approximate boundary between soil types and the

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB18 3920.0041

Job No. Sheet

1 of 1

Surface Elevation

Northing:

DAP

Drill Method 2 1/4" I.D. HSA

Logger

TJK

J\3920\gint\BLACK_ID: CHICAGO

Editor

B-57

180.3 -556.9

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION qu No. Rec. Mois-Depth PID and Remarks (qa) (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, CLAY (TOPSOIL) 20 M Gray Silt (ML) Gray Brown to Gray CLAY, Fine to Coarse Gravel (CL) 2 Hard, Gray, Silty CLAY, Little Fine to Coarse 22 M 4.0-Gravel, Trace Fine to Coarse Sand (CL-ML) >4.0 12 M 3.5 3.5 Very Stiff, Black Organic Silty CLAY (OL) End of Boring at 6.0 ft Borehole Backfilled with Drill Cuttings. 10 15-**GENERAL NOTES** WATER LEVEL OBSERVATIONS 10/9/96 End 10/9/96 ft. Upon Completion of Drilling ft. Start While Drilling Bob Rig Mobile **TSC** Chief Time After Drilling Driller



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB19

Job No.

3920.0041 1 of 2

Sheet 1 of Surface Elevation

Northing:

181.2

Easting: -357.9

_					210	00 Corporate Drive, Addison, Illinois 60101, TEL. (70	08) 691-5	5000			
			PLE			VISUAL CLASSIFICATION	J				ERTIES
No.	Rec.	Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
1	10	M	75			Dark Brown to Black, Silty CLAY (TOPSO	- 1				
				_		Loose to Very Dense, Brown, Fine to Coars SAND and GRAVEL (SP/GP)	se				
2	16	M	71	 - 							
3	4	М	31	5							
4	6	M	24	_							
5	18	M	13			Loose to Very Dense, Brown to Rust, Fine t Coarse SAND and GRAVEL, Little Clay (SP-SC/GP-SC)	to				
,	10	IVI		_		Loose to Very Dense, Clayey SAND and GRAVEL (SC/GC)					
6	4	М	7	10-							
7	16	W/M	4	_							
				_		Loose to Very Dense, Gray, Sandy CLAY, Trace to Little, Fine to Coarse Gravel (CL)			0.5		
8	22	М	14	15-		Loose to Very Dense, Gray CLAY, Trace I to Coarse Sand and Gravel (CL)	Fine		>4.0		
	<u> </u>	J	W		RL	EVEL OBSERVATIONS		GEI	VERA	NOT	ES
Tir De De	nile Di ne Afi pth to pth to	er Dr Wate Cave	¥ illing r in		_ft.	Upon Completion of Drillingft. S	Driller Logger	10/9/9 TSC DAP	6 End Chief Edito	10/9/9 Bob	
	l he strai ransitio	IIICALIC	on unes	represer	at the	approximate boundary between soil types and the				1/3920\aint\BL	CK. ID: CHICAGO



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB19 3920.0041

Job No. Sheet

2 of 2

Surface Elevation Northing:

181.2

· · · · · · · · · · · · · · · · · · ·	W	<i>y</i> 		100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 6	91-5000	Easting:	-357	7.9
				VISUAL CLASSIFICATION				PERTIES
Rec.				and Remarks		(qa) (tsf)	PID (ppm)	Remarks
			_		_			
			_	End of Boring at 16.0 ft				
]		-	Borehole Backfilled with Drill Cuttings.				
			_					1
			20-					
				·				
			-					
			-					•
			 25	•				
			 -	-:				
			_					
			_					
							1	
			30-					
	Rec.	SAM	SAMPLE	SAMPLE Rec. Mois- N Value (ft.)	SAMPLE Rec. Mois- N Depth (fft.)	SAMPLE VISUAL CLASSIFICATION and Remarks VISUAL Place of Boring at 16.0 ft Borehole Backfilled with Drill Cuttings.	SAMPLE VISUAL CLASSIFICATION and Remarks VISUAL CLASSIFICATION (qa) (qb) (gb) (gc) (gc) (gc) (gc) (gc) (gc) (gc) (gc	SAMPLE VISUAL CLASSIFICATION and Remarks VISUAL CLASSIFICATION (qu (qu) (qu) (tet) (tet) (tet) End of Boring at 16.0 ft Borehole Backfilled with Drill Cuttings.



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

TB20

Job No.

3920.0041

Sheet 1 of 1 Surface Elevation

Northing:

180.3 -158.1

		W	<i>y</i> 		≀ 21	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	East	ting:	-158.	1	
	S	AM	PLE		_ <u>-</u> -	VISUAL CLASSIFICATION	T	OIL	PROP	ERTIES	\
No.	111	Mois- ture	N Value	Depth (ft.)		and Remarks	(qu qa) :sf)	PID (ppm)	Remarks	
1	20	M	24		777	Dark Brown, Silty CLAY (TOPSOIL)	,				
				_		Medium Dense, Gray Brown, Silty CLAY, Little Fine to Coarse Gravel (CL) Medium Dense, Fine SAND and SILT from 1.2 to 1.5 ft				,	
2	20	M	27			Brown, Silty CLAY (CL-ML)					
				 - 		Gray SILT, Some Clay (ML)					
3	22	M	28	_ _ 5_ -		Hard, Gray and Gray Brown, Silty CLAY, Some Sand, Trace Fine to Coarse Gravel and Sand (CL-ML)	>	4.0			
4	22	М	40	-			>	4.0			
				_		End of Boring at 8.0 ft					
				- - - 10-		Borehole Backfilled with Drill Cuttings.					
				-							
				_ - - 15-							
									NOT		
Tir De De	hile Di me Aft opth to opth to	er Dr Wate Cave	illing r in			Driller T Logger D Drill Metho	9/96 SC AP d 2	Chief Editor		Rig Mob B-57	
\ 1	i ne strat <u>ransitio</u> i	may t	n nnes e grad	ual.	ic une	approximate boundary between soil types and the			\3920\aint\BLA	CK ID: CHICAGO	\nearrow

EXTRACTION WELL LOGS



While Drilling

Depth to Water

Depth to Cave in

Time After Drilling

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

¥ 8.08.0ft. Upon Completion of Drilling ₹

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

DuPage County, Illinois

Boring No.

EW01

Job No. Sheet

3920.0041 1 of 3

Surface Elevation

753.5

Northing:

6/10/96 End

Chief

Editor

Terra

DAP

ft. Start

Driller

Logger Drill Method 6/10/96

TJK

Steve Rig AF10

J\3020\aint\BLACK_ID: CHICAGO

859.5

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -1295.7 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION PID Rec. Mois-Depth and Remarks (qa) No. (ppm) Remarks (in.) ture Value (ft.) (tsf) Dark Brown, Silty CLAY (CL-ML) M Brown SAND, GRAVEL and COBBLES, Wet (SP/GP) M/W W W MUNICIPAL WASTE: Black Stained Clay M Intermixed with Municipal Waste; Plastic, Paper, Small Pieces of Wood, Tin Cans, Hub Cap, Low to Moderate Decomposition, Moist M Brown SAND and GRAVEL Cover (SP/GP) MUNICIPAL WASTE: Wood, Paper, Plastic, Rubber Tires, Tin Cans, Low to Moderate WATER LEVEL OBSERVATIONS **GENERAL NOTES**



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No. Job No.

EW01 3920.0041

Sheet

2 of 3

Surface Elevation

753.5

Northing: Easting:

859.5 -1295.7

SAMPLE No. Roc. Moise in ture value (fit.) Decomposition, Saturated at 16 ft MUNICIPAL WASTE from 23 to 25 ft, Intermixed with Sand, Clay, Gravel, Cover Material, Moist MUNICIPAL WASTE from 25 to 28 ft: Newspaper, Plastic, Tin Cans, Saturated MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated MINICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated MINICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated MINICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated	\geq		 	 	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000	Lasting.		
MUNICIPAL WASTE from 23 to 25 ft, Intermixed with Sand, Clay, Gravel, Cover Material, Moist MUNICIPAL WASTE from 25 to 28 ft: Newspaper, Plastic, Tin Cans, Saturated MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated		-	 	 	1			ERTIES
Decomposition, Saturated at 16 ft W MUNICIPAL WASTE from 23 to 25 ft, Intermixed with Sand, Clay, Gravel, Cover Material, Moist W MUNICIPAL WASTE from 25 to 28 ft: Newspaper, Plastic, Tin Cans, Saturated W/M MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated	No.	41				(qa)	1 1	Remarks
MUNICIPAL WASTE from 23 to 25 ft, Intermixed with Sand, Clay, Gravel, Cover Material, Moist MUNICIPAL WASTE from 25 to 28 ft: Newspaper, Plastic, Tin Cans, Saturated MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated W/M				-	Decomposition, Saturated at 16 ft	M/W		
MUNICIPAL WASTE from 23 to 25 ft, Intermixed with Sand, Clay, Gravel, Cover Material, Moist MUNICIPAL WASTE from 25 to 28 ft: Newspaper, Plastic, Tin Cans, Saturated WMM MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated				-		w		J
MUNICIPAL WASTE from 23 to 25 ft, Intermixed with Sand, Clay, Gravel, Cover Material, Moist MUNICIPAL WASTE from 25 to 28 ft: Newspaper, Plastic, Tin Cans, Saturated MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated W/M				20- - 		w		
Newspaper, Plastic, Tin Cans, Saturated MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated	^か ナ ^ン ン			-	Intermixed with Sand, Clay, Gravel, Cover	М		J
MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated				25 		w		
- 30- M/W				-	MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Saturated	W/M		
PER PER PER PER PER PER PER PER PER PER				30-		M/W		



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location **DuPage County, Illinois** Boring No.

EW01

Job No. Sheet

3920.0041 3 of 3

Surface Elevation

753.5

Northing:

859.5 Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -1295.7 **SOIL PROPERTIES** SAMPLE VISUAL CLASSIFICATION Rec. Mois-Depth PID and Remarks (ap) No. ture Value (ft.) (ppm) Remarks (tsf) W Gray Gravelly CLAY, Cover Soils, Moist (CL) M/W MUNICIPAL WASTE: Newspaper, Plastic, Tin Cans, Moist W M/W Light Brown, Sandy CLAY, Moist (CI) **MUNICIPAL WASTE** M Blue Gray, Silty CLAY, Gravel (CL-ML) M End of Boring at 46.0 ft Extraction Well Installed to 44.5 ft



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

DuPage County, Illinois

Boring No.

EW01A

Job No.

3920.0041

Sheet

1 of 3

Northing:

Surface Elevation

751.8

Norming Easting:

864.3 -1241.4

J\3920\gint\BLACK_ID: CHICAGO

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION PID Rec. Mois-Depth and Remarks (ap) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) TOPSOIL and Black CLAY (Cover Soils) (CL) M Light Brown SAND and GRAVEL, Some Cobbles, Scattered Boulders (Cover Soils), Wet (SP/GP) M M/W W/M Gray, Silty CLAY, Some Gravel (Cover Soils) M (CL-ML) MUNICIPAL WASTE: Fabric, Clothing, Paper, Plastic, Tin Cans Intermixed with Cover Material WATER LEVEL OBSERVATIONS GENERAL NOTES 6/10/96 ft. Upon Completion of Drilling 6/10/96 End While Drilling Rig AF10 Chief Steve Time After Drilling Driller Terra DAP Editor **PMS** Depth to Water Logger Drill Method Depth to Cave in



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

EW01A

Job No. Sheet 3920.0041 2 of 3

Surface Elevation

751.8

Northing:

864.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -1241.4 SOIL PROPERTIES SAMPLE VISUAL CLASSIFICATION qu PID Ν Rec. Mois-Depth and Remarks No. (qa) ture Value (ft.) (ppm) Remarks (tsf) M M MUNICIPAL WASTE: Small Pieces of Broken Glass, Leaves, Plastic, Wiring, Shoes, Tin Cans Gray, Silty CLAY, Some Gravel (Cover Soil) (CL-ML) M M MUNICIPAL WASTE: Mixture of Cover Material (90%) with Municipal Waste; Paper, Plastic, Small Pieces of Wood (10%) Higher Percentage of Waste (30%) and Cover M Material (70%) 90% Waste at 27 ft; Small Pieces of Wood, Plastic, Paper Products, Wet W/M Gray, Silty CLAY, Some Gravel (Cover Soils) (CL-ML)



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW01A

Job No. Sheet

3920.0041

3 of 3

Surface Elevation Northing:

751.8

864.3 Easting: -1241.4 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION Mois-Ν PID Rec. Depth and Remarks (qa) (in.) ture Value (ft.) (ppm) Remarks (tsf) MUNICIPAL WASTE: Large Pieces of Wood, Broken up Tree Stumps, Low to Moderate M Decomposition M/W M/D Brown Clayey SAND and GRAVEL (Cover Soils) (SC/GC) MUNICIPAL WASTE: Brown, Clayey Sand M/W and Gravel Cover Material Mixed with Some Municipal Waste; Garbage, Paper, Plastic, Tin Cans M Gray-Blue, Silty CLAY, Little Fine Gravel (CL-ML) M End of Boring at 47.0 ft Extraction Well Installed to 44.5 ft



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW02

Job No. Sheet

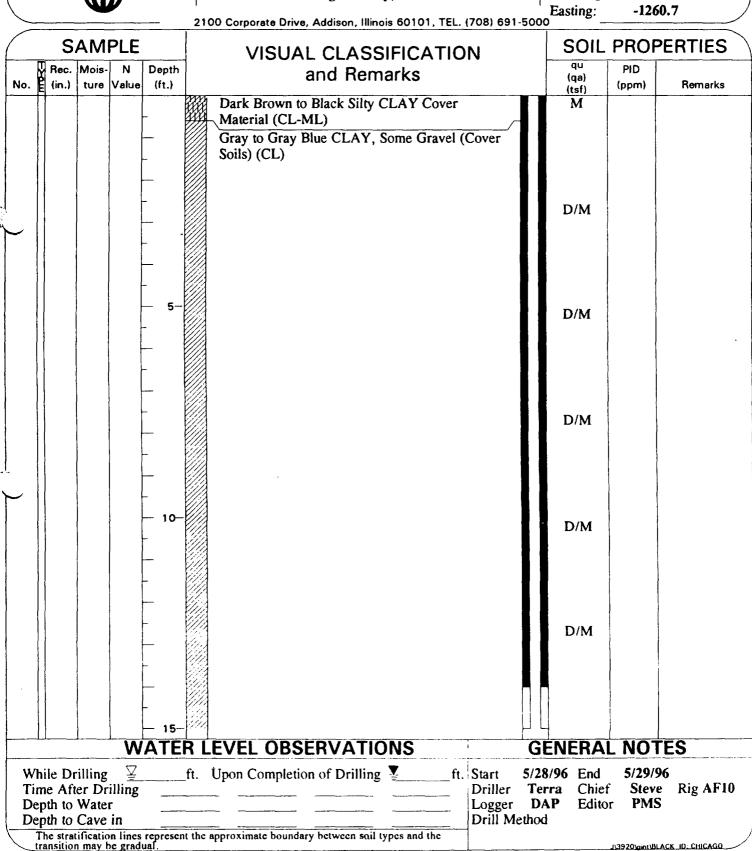
3920.0041 1 of 6

Surface Elevation

792.4

Northing:

580.7 -1260.7





LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW02

Job No.

3920.0041

Sheet

2 of 6 792.4

Northing:

Surface Elevation

580.7

Easting:

-1260.7

		_					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000	Lasting.	-12(
1		 		AM			VISUAL CLASSIFICATION			PERTIES
	No.	¥	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
						-		D/M		
						- -		D/M		
						- - 20- -	Light Brown SAND and GRAVEL, Cobbles, Some Clay (Cover Soils) (SC/GC)	М		
						-		М		
						25		М		J
						-		М		
						- 30- - - -		М		
	(



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

EW02

Job No. Sheet 3920.0041 3 of 6

Surface Elevation

792.4

Northing:

580.7 -1260.7

CANADIE					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-50	<u> </u>			
- In-			PLE		VISUAL CLASSIFICATION	L	PROPERTIES		
n. M.	ec. N		N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks	
				-		M			
				- 35- - -		М			
					MUNICIPAL WASTE: Newspaper, Fabric, Moderate Decomposition, Intermixed with	D/M			
				40	Sand, Gravel and Clay, Alot of Cover Material, Sand, Gravel, Mixed in with Municipal Plastic, Paper, Fabric, Fencing, Blue Jeans, Pieces of Wood, T-Shirts, Wet	M			
				- - -	MUNICIPAL REFUSE: Moderately Decomposed	W			
				45		W			
						W/M			



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW02

Job No.

3920.0041 4 of 6

Sheet Surface Elevation

792.4

Northing:

580.7

	S	AM	PLE		VISUAL CLASSIFICATION		SOIL	ERTIES	
No.		Mois-		Depth	and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
				50 	Not as Saturated MUNICIPAL WASTE: Paper, Tin Cans, Fabric (Clothing), Plastic, Wood, Wiring, intermixed with Sandy Clay Soils		M/W		
				-	MUNICIPAL WASTE: Wood, Fencing Debris, Some Black Staining on Wood Debris (Possible Tree Stump), Moderate Decomposition	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	M		
				- 55- - - -			w		
				- 60-			W		•
				-					
		; ; 		⊢ 65−	Cover Material), Not Very Moist		D		



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

EW02 3920.0041

Job No. Sheet

5 of 6

Surface Elevation

792.4

Northing: Easting:

580.7 -1260.7

\geq					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000	sasting: 	-1260	
<u> </u>	S	AM	PLE		VISUAL CLASSIFICATION		PROP	ERTIES
No.	Rec.	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
_				-	MUNICIPAL WASTE: Paper, Plastic, Intermixed with Gray Silt, Sand and Gravel, Little More Moist, but Not Saturated, Pieces of Carpeting, Small Pieces of Glass, Some Steel	M/D		
				70 - - 	and Tin Cans	M/D		
				-		M/D		
				75- - -	More Gravel in Sand Mixture, Less Weste, More Moisture	27.57		
				-	Some Plastic, Possible Lawn Cuttings, Plastic, Brick, Wet	w		
				80-		W		



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW02

Job No.

3920.0041

Sheet

6 of 6

Surface Elevation

792.4

Northing: Easting:

580.7 -1260.7

		_					2100	Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000)	-12(
f		ता		AM	,			VISUAL CLASSIFICATION	SOIL		PERTIES
	No.	¥	Rec. (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks	(qa) (tsf)	P(D (ppm)	Remarks
						- 85-		Brown and Gray Mottled, Silty CLAY with Fine to Coarse Sand and Gravel (CL-ML)	W M		
						- - - - - - - - -		End of Boring at 86.0 ft Extraction Well Installed to 83.5 ft			
						95-					
)



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW03

Job No.

3920.0041

Sheet

1 of 5 769.8

Surface Elevation Northing:

598.3

Easting:

-954.8

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

	S	ΑM	PLE			VISUAL CLASSIFICATION	N		SOIL	PROP	ERTIES
No.		Mois- ture	N Value	Depth (ft.)		and Remarks			qu (qa) (tsf)	PID (ppm)	Remarks
						Dark Brown, Silty CLAY Cover (Cover So (CL-ML) Brown, Silty CLAY, Some Gravel (Cover so (CL-ML)			M		
)				-		Gray, Silty CLAY, Some Gravel (Cover So (CL-ML)	oils)		M		
				- 5- - - -					M		
				10-		Gray SAND and GRAVEL, Some Silt, COBBLE Zone (Cover Material) (SM/GM)		M		
				-		Gray, Silty CLAY, Some Gravel, COBBLI (Cover Soils) (CL-ML)	ES		М		
				15-		EVEL OPERNATIONS		CEN	IEDA	NOT	= {·
	71 '1	•11•				EVEL OBSERVATIONS			IERAL		
T D	The steel	er Dr Wate Cave	illing r in				Start Driller Logger Drill Me	6/12/9 Terra DAP ethod		6/12/96 Steve PMS	
	transition	iiiicatio n mav h	on tines be grad	represen ual	ine	approximate boundary between soil types and the			.1.	.3920\aint\BLA(CK ID: CHICAGO



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW03

Job No. Sheet

3920.0041 2 of 5

Surface Elevation

769.8

Northing: Easting:

598.3 -954.8

No.		Mois		E.		VICUAL CLASSIFICATION	SOIL	PROF	EDTIEC	
Vo.	J		wei N	أا	Dacet	VISUAL CLASSIFICATION	qu	L PROPERTIES		
	1	ture	e Vak		Depth (ft.)	and Remarks	(qa) (tsf)	(ppm)	Remarks	
					-	MUNICIPAL WASTE: Fabric, Pieces of Wood, Garbage, Paper, Plastic, Cans, Low Decomposition	M D/M			
					-	Brown SAND and GRAVEL, Some Clay (Cover Material) (SC/GC)	M/W			
					- 20 -	Yellow to Olive Brown CLAY (Cover Material) (CL) Gray CLAY, Some Gravel, Few Cobbles (Cover Material), Wet	W/M			
					- -	Orange-Brown to Brown SAND and GRAVEL, Some Clay Zones in Cover Material (SP/GP) Yellow-Brown SAND and GRAVEL	М			
				-	- 25- - -		М			
				1	- - -	Park Gray, Silty CLAY, Some Gravel (Cover Material) (CL-ML)	М			
					30 - - -		М			



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW03

Job No. Sheet 3920.0041 3 of 5

Surface Elevation

769.8

598.3 -954.8

Northing: 59
Easting: -9

					210	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-50	oo Easung	3: -934	.0
		AM				VISUAL CLASSIFICATION	L	IL PROF	PERTIES
No.	Rec (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
				_		MUNICIPAL WASTE: Large Pieces of Wood, Some Fabric Intermixed with Gray Clay Cover	M		
				_		MUNICIPAL WASTE: Plastic, Newspaper, Pieces of Cardboard, Wiring, Low Decomposition, Decomposition more Moderate at 35 ft	D/M		
				- 35- - -			D/M		
				-			D/M	I	
				- 40- - - -			D/M		
				-		MUNICIPAL WASTE: Paper, Plastic, Wood, Grass Clippings, Leaves, Low to Moderate Decomposition	D/M		
				45-			M/W	v	
						MUNICIPAL WASTE: Construction Debris, Small Pieces of Concrete, Wood, Black Staining, Wet	W		
(



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW03

Job No.

3920.0041

Sheet

4 of 5

Northing:

Surface Elevation 769.8 598.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -954.8 **SOIL PROPERTIES SAMPLE** VISUAL CLASSIFICATION PID Rec. Mois-Depth and Remarks (ap) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Newspaper dated October 1966 Gray CLAY, Some Sand and Gravel Intermixed (Cover Material) (CL) 50 MUNICIPAL WASTE: Newspaper, Cardboard, D/M Plastic, Grass Clippings, Low to Moderate Decomposition, Small Propane Cannister at 52 ft, Cover Material Intermixed (Clay, Gravel) Between 51 and 55 ft, 60% Cover, 40% Waste D/M D/M D/M Pieces of Concrete at 60 ft (Construction M/W Debris) W/M Blue-Gray, Silty CLAY, Some Fine Gravel (CL-ML) M



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.

EW03

Job No. Sheet 3920.0041 5 of 5

Surface Elevation

769.8

Northing:

598.3

Easting: -954.8

\geq					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5	000	sting:	-954	
		SAM		,	VISUAL CLASSIFICATION				PERTIES
No.	Red (in.	Mois-	N Value	1	and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
		ļ		_					
				-	End of Boring at 66.0 ft Extraction Well Installed to 64.0 ft				
				-					
							ļ		
ر ا									
				_					
				70- -					
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				- 80-					
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Time After Drilling

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Depth to Water

Depth to Cave in

LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location DuPage County, Illinois Boring No.

EW04 3920.0041

Rig AF10

Steve

J\3920\gint\BLACK_ID; CHICAGO

PMS

.

Job No. Sheet

1 of 9

Surface Elevation

836.9

Northing:

330.0

	S	AM	PLE		VISUAL CLASSIFICATION		PROP	ERTIES
	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
					Black, Silty CLAY (Topsoil Cover) (CL-ML) Gray to Gray-Blue, Silty CLAY, Fine to Coarse Sand and Gravel (Cover Soils) (CL-ML)	M		•
				- 5- 5-		М		
				- 1 - 1 - 2	Gray CLAY, Some Sand and Gravel, Boulders, Cobble (Cover Soils) (CL)	М		
				- - 10- - 		D		`
				- - - -		D		
\perp				ATER	LEVEL OBSERVATIONS GE	AIED A	L NOT	-

Driller

Logger DAP

Drill Method

Terra

Chief

Editor



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

DuPage County, Illinois Location

EW04 Boring No. Job No. 3920.0041 Sheet 2 of 9

836.9 Surface Elevation

Northing: 330.0 -1307.7

<u> </u>			Location Durage County, Illinois 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Easting:	-130	7.7
	MPLE		VISUAL CLASSIFICATION	SOIL PROPERT		
lo. Rec. M	lois- N ure Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
				D		
	ļ			D		
		_				
		-				•
		20- -		D		
		_				
		- _				
		-		D		
		_				
		- K				
		 25 -		D		
		-				
				D		
				D		
		30~	Becomes More of a Gray-Brown to Gray in Color, Boulder and Cobbles Still Present,	D		
			(Cover Soils)			



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. Job No. EW04 3920.0041

Sheet

3 of 9

Surface Elevation

836.9

Northing: Easting: 330.0 -1307.7

_					2100	Corporate Driv	e, Addison,	, Illinois 60	101, TEL.	(708) 691-5	5000	Easting:	-130	7.7
		SAM	PLE				AL CLA					SOIL	PROP	PERTIES
lo.	Red (in	. Mois	N Value	Depth (ft.)		,,,,,,		emark				qu (qa) (tsf)	PID (ppm)	Remarks
												((31)		
				-								D		
				_										
				_						•				
i				- -										
				— 35— _								D		•
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LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

Location DuPage County, Illinois Boring No.

EW04 3920.0041

24.**5**-

Job No. Sheet

4 of 9

Surface Elevation

836.9 330.0

Northing:

Easting: -1307.7 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-Depth PID and Remarks (qa) (in.) ture Value (ft.) (ppm) Remarks (tsf) 50 Gray CLAY, Some Sand and Gravel Cobble, M/D Boulder (Cover Soils), Moist M/D 55 D/M D/M Gray CLAY, Some Sand and Gravel Cobbles, Boulders (Cover Soils), Moist 60-D/M D/M MUNICIPAL WASTE: Carpeting, Wood, Paper, Plastic Wrappers, Low to Moderate Decomposition D/M



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. Job No.

EW04 3920.0041

836.9

Sheet

5 of 9

Surface Elevation

Northing:

330.0

Easting: -1307.7

	\geq						2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000	Casting.	-13	
4		-		AMI			VISUAL CLASSIFICATION		,	PERTIES
	No.		Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
الأريا						-		D/M		
						70	MUNICIPAL WASTE: Lots of Wood, Metal, Fence Posts, Construction-Like Debris	D/M		
						 	Light Brown SAND and GRAVEL (Cover Material) (SP/GP)	D/M		
16,34						75 	MUNICIPAL WASTE: Paper, Wood, Metal	D/M		
						- - -		D/M		
				•		80-	MUNICIPAL WASTE: Paper, Plastic, Fabric, Metal (Cover Material)	D/M		



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

DuPage County, Illinois Location

Boring No.

EW04 3920.0041

836.9

Job No. Sheet

6 of 9

•

Surface Elevation

330.0

Northing: -1307.7

					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708)	691-5000	asting:	-1307	
No.	Rec.	AM eioM	N	Depth	VISUAL CLASSIFICATION and Remarks		SOIL qu (qa)	PID	ERTIES
	(in.)	ture	Value	(ft.)		000000000000000000000000000000000000000	(tsf) D/M	(ppm)	Remarks
_				85~			D/M		
				- 	CLAY, Some Gravel (Cover Material) (CL)	000000000000000000000000000000000000000	D/M		
				90-	MUNICIPAL WASTE: Paper, Plastic, Wood, Pieces of Metal, Intermixed with Silt, Sand, Gravel and Cobbles		D/M		
,						000000000000000000000000000000000000000	D/M		
				- 95- - - -			D/M		
				_			D/M		



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW04 3920.0041

Job No.

7 of 9

Sheet 7 of Surface Elevation

ion 836.9

Northing:

330.0

Easting: -1307.7

	\geq						2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000	Easung: O –	-13	
4		m			PLE	,	VISUAL CLASSIFICATION	SOIL	,	PERTIES
	No.		Rec. (in.)	Mois ture	Value	Depth (ft.)	and Remarks	(qa) (tsf)	PID (ppm)	Remarks
						-100-		D/M		
							MUNICIPAL WASTE: Wood, Paper, Glass, Fabric, Metals, Moderate Decomposition	D/M		
							MUNICIPAL WASTE: Wood, Paper, Plastic, Glass, Fabric, Metal with Gray Silt, Sand, Gravel, Clay, Small Cobble, Moderately Decomposed Mixture of Municipal Waste and Cover (Approximately 50/50%)	D/M		
7.50						-		D/M		
						-110- - -		D/M		
						-		D/M		
						-115-		D/M		



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location DuPage County, Illinois Boring No. Job No.

EW04 3920.0041

836.9

Sheet

8 of 9

Surface Elevation

330.0

Northing: -1307.7

	SAMPLE				VISUAL CLASSIFICATION	SOIL	PROPERTIES	
No	Rec.	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
				-	Grading to Moist	D/M		
ر ا				- 120- - -		M/W		
				_ \		W		
ر ر				125 	MUNICIPAL WASTE: Plastic, Cardboard, Paper, Plastic, Pieces of Wood, Small Pieces of Glass, Moderately Decomposed	W		
						W		
				130 		W/M		
					Gray-Blue, Silty CLAY, Some Sand (CL-ML) Gray-Blue, Silty CLAY, Some Sand and Fine Gravel (CL-ML)	М		



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

DuPage County, Illinois Location

Boring No.

EW04 3920.0041

836.9

Job No. Sheet

9 of 9

Surface Elevation Northing:

330.0

Easting:

-1307.7

\	_					2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Easting:	-130	
		S	AM	PLE		VISUAL CLASSIFICATION		PROF	PERTIES
N	lo.	Rec.	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
				_		End of Boring at 133.0 ft Extraction Well Installed to 131.0 ft			
					135-				
					_				
					_				
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					-				
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					—140— —				
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	}				145				
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	į				150				



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW05

Job No. Sheet

3920.0041 1 of 7

Surface Elevation

809.2

Northing:

333.4 -1037.0

	W			2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-50	Easting:	-1037.	0
S	AMF	PLE	<u> </u>	VISUAL CLASSIFICATION		PROPE	RTIES
No. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
				Brown, Silty CLAY (Cover Soils) (CL-ML)	M		·
		-		Gray, Silty CLAY, Some Gravel, Small Cobbles (Cover Soils) (CL-ML)	D/M		
			-		D/M D/M		
			 _ _ _ _ 10_		D/M		
			-		D/M		
		W	ATF	R LEVEL OBSERVATIONS (SENERA	I NOTE	S
While Di Time Aft Depth to Depth to	ter Dri Water Cave i	$\frac{\underline{Y}}{\underline{Y}}$	47.0	ft. Upon Completion of Drilling ft. Start 6/Driller 1	11/96 End Terra Chies DAP Edito	6/11/96 f Steve	
transitio	n may be	e grad	uaľ.			J\3920\qunt\BLAC	K ID; CHICAGO



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location DuPage County, Illinois

Boring No. Job No.

EW05 3920.0041

Sheet

2 of 7

Surface Elevation

809.2

Northing:

333.4

No. Rec. Mois- N (in.) ture Value	Depth e (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf) D/M	PID (ppm)	Remarks
	[22224]		D.111		•
	- 20- Gra	ay-Brown, Silty CLAY, Some Gravel bbles (Cover Soils) (CL)	D/M		
	-		D/M		
	- (Co	ay, Silty CLAY, Some Gravel, Cobbles over Soils) (CL)	D/M		•
		illow-Brown SAND and GRAVEL, Some bble's, Little Clay (Cover Soils) (SP/GP)	D/M		
	to I	ay, Silty CLAY, Some Gravel, Small Cobble Large Cobble/Boulder (Cover Soils) L-ML)	D/M		



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW05 3920.0041

Job No. Sheet

3 of 7

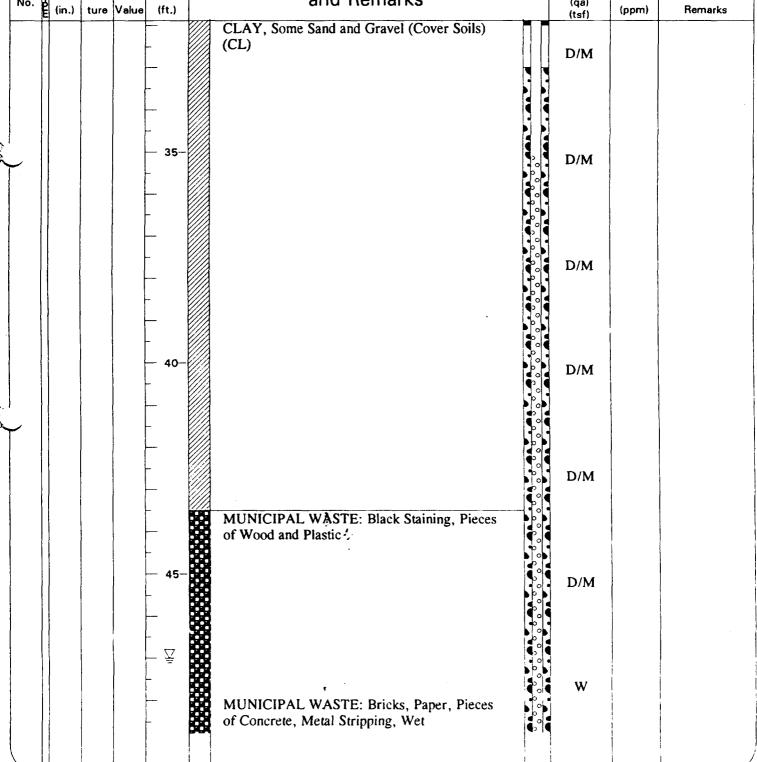
Surface Elevation

809.2

Northing:

333.4 -1037.0

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE SOIL PROPERTIES** VISUAL CLASSIFICATION No. P Rec. Mois-PID Depth and Remarks (qa) Value (ft.) (ppm) Remarks (tsf) CLAY, Some Sand and Gravel (Cover Soils)





LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

DuPage County, Illinois Location

Boring No. Job No.

EW05 3920.0041

Sheet

4 of 7

Surface Elevation Northing:

809.2

333.4

_		<u> </u>			2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Easting: _	-1037	'.0
			PLE		VISUAL CLASSIFICATION	SOIL	PROP	ERTIES
۷o. ع	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
				- 50-		w		
				- - -	Gray, Silty CLAY (Cover Material) (CL-ML)	M/W		,
				55_ _	MUNICIPAL WASTE: Demolition Waste Intermixed with Clay, Gravel (Cover Material), Moderate Decomposition, Very Wet - Sloppy	w		
				-		w		
				- 60- -	MUNICIPAL WASTE: Garbage, Plastic, Paper, Fabric, Clothing, 50% Cover Material and 50% Garbage Material	w		
				-		w		
				- - 65-	MUNICIPAL WASTE: Paper, Plastic	w		



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location **DuPage County, Illinois**

Job No. Sheet

Boring No.

EW05 3920.0041

Sec. 16

5 of 7 809.2

Northing:

Surface Elevation 333.4

-1037.0 Easting:

						210	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Dasting.	-103	
	-			PLE			VISUAL CLASSIFICATION	Į.		PERTIES
No.		Rec. (in.)	Mois- ture	N Value	Depth (ft.)		and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
					-			w		
					- 70- - 70- 		MUNICIPAL WASTE: Difficult to Distinguish Waste, So Wet and Sloppy	W		
								w		
/					- 75- 		MUNICIPAL WASTE: Shoes, Fabric, Plastic, Paper, Tin Cans	w		
								w		
					- 80- 		MUNICIPAL WASTE: Fibrous, Wood-Like Materials, Possible Demolition Debris	w		
					-	HO-C		b		



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location

DuPage County, Illinois

Boring No.

EW05 3920.0041

Job No. Sheet

6 of 7

Surface Elevation

809.2

Northing:

333.4

				,	VISUAL CLASSIFICATION			IL PROPERTIES		
lo.	Rec (in.)		N Value	Depth (ft.)	and Remarks	qu (qa (ts	a) f)	PID (ppm)	Remarks	
				- - - - 85-	Gray, Silty CLAY, Some Gravel (Cover Material) (CL-ML), Not Native					
				-	Gray, Silty CLAY, Some Gravel (Cover Material) (CL-ML)	M.	I			
				90-	MUNICIPAL WASTE: Plastic, Paper, Wood,	M/	w			
				-	Fibrous Material (Wood-Like)	, , , , , , , , , , , , , , , , , , ,	1			
				- 95 -	MUNICIPAL WASTE: Metal Springs, Wiring, Metal, Paper, Plastic, Cobbles	%, %, %, %, %, %, %, %, %, %, %, %, %, %	<i>!</i>			
				-		W N N N N N N N N N N N N N N N N N N N	i			



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

Location DuPage County, Illinois Boring No.

EW05 3920.0041

809.2

Job No. Sheet

7 of 7

Surface Elevation

333.4

Northing:

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -1037.0 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION No. P (in.) Rec. Mois-N Depth PID and Remarks (qa) ture Value (ppm) Remarks (ft.) (tsf) 100 MUNICIPAL WASTE: Wood, Paper, Plastic, W/M Metal Stripping Intermixed with Clay, Gravel W/M Difficult to Tell Where Base of Landfill is 105 Gray CLAY, Some Gravel, Intermixed with M Wood-Like, Fibrous Material (CL) End of Boring at 107.5 ft Extraction Well Installed to 105.0 ft 110-115-



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW06 3920.0041

Job No. Sheet

1 of 4

Surface Elevation

760.0

Northing:

224.3

-772.2

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE** SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-Ν Depth PID and Remarks (qa) (in.) ture Value (ft.) No. (ppm) Remarks (tsf) Dark Brown, Silty CLAY (Cover Soils) M (CL-ML) 6" Brown Sand, Gravel and Cobbles to 1 ft M Dark Gray, Silty CLAY, Gravel (Cover Soils) (CL-ML) Layer of Straw at 4 ft M Gray, Silty CLAY, Some Gravel and Cobbles, Then Grades into Brown CLAY, Some Gravel M (Cover Soils) (CL-ML) D/M MUNICIPAL WASTE: Paper, Plastic, Wood, Fabric, Shoes, Tin Cans, Low to Moderate Decomposition D/M Gray Brown SAND and GRAVEL, Some Cobbles (Cover Soils) (SP/GP) MUNICIPAL WASTE: Paper, Plastic, WATER LEVEL OBSERVATIONS GENERAL NOTES ft. Upon Completion of Drilling ft. Start 6/13/96 End 6/13/96 While Drilling Chief Steve Rig AF10 Time After Drilling Driller Terra Depth to Water Logger DAP Editor **PMS** Drill Method Depth to Cave in The stratification lines represent the approximate boundary between soil types and the J\3920\gint\BLACK_ID: CHICAGO transition may be gradual



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

DuPage County, Illinois Location

Boring No.

EW06

Job No. Sheet

3920.0041 2 of 4

Surface Elevation

760.0

Northing:

224.3 -772.2

	W	V		Locat		_	ounty, Illin		1,	Northing: Easting:	224 -772	
	SAMI	PI F		2100 Cor				1, TEL. (708) 69	1-5000		PROP	ERTIES
	. Mois-		Depth (ft.)		VISU		SSIFIC <i>i</i> emarks	ATION		qu (qa) (tsf)	PID (ppm)	Remarks
			-	Car	dboard,	Metal, Wir	ing, Grass C	Cuttings		D/M		
-										D/M		
		!	- 20- - -							D/M		
			-		ps of W		: Grass Clip Black Stainin			D/M		
			- 25- - - -	Coi	ls, Piece	es of Wood,	: Metal Stra 78-Speed R rd, Tires, C			D/M		
									000000000000000000000000000000000000000	D/M		
			- 30-	(Co	ver Soil INICIPA	s) (SC/GC)	: 70% Cove	r Material		D/M		



LOG OF TEST BORING

Blackwell Landfill - NPL Site **Project**

DuPage County, Illinois Location

Boring No.

EW06 3920.0041

Job No. Sheet

3 of 4

Surface Elevation

760.0

Northing:

224.3

-772.2

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION Rec. Mois-Depth and Remarks PID (qa) (tsf) (in.) ture Value (ft.) (ppm) Remarks D/M MUNICIPAL WASTE: Paper, Shoes, Rubber, D/M Lawn/Garden Hose, Cardboard, Metal Stripping D/M Gray CLAY (Cover Soils) (CL) MUNICIPAL WASTE: Plastic Sheeting, Pieces of Metal, Fabric, Springs D/M D/M Dark Gray Silty CLAY, Some Gravel (Cover Soils) (CL-ML) MUNICIPAL WASTE D/M Gray CLAY (Cover Soils) (CL) MUNICIPAL WASTE D/M



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. Job No.

EW06 3920.0041

Sheet

4 of 4

Surface Elevation Northing: 224.

tion 760.0 224.3

Northing: Easting:

-772.2

\geq	SAMPLE					OO Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-50	000	Easting: SOIL	PERTIES	
No.		Mois-	N Value	Depth (ft.)		VISUAL CLASSIFICATION and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks
				 - 50 - -		Gray CLAY, Some Gravel (Cover Soils) (CL) MUNICIPAL WASTE: Plastic, Paper, Cardboard, Wood	00000000	M		
,			- - - - -	- :			0 0 0 0 0 0 0	M		
				55 - 		Gray, Silty CLAY, Little Fine Gravel (CL-ML)		М		
				 - -		End of Boring at 57.5 ft Extraction Well Installed to 55.5 ft				
				60 - -		• .				
				-						
				65 -						



Depth to Water

Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW07 3920.0041

Job No. Sheet

1 of 5

Surface Elevation

772.9

Northing:

457.3

Logger DAP

Drill Method

PMS

J\3920vint\BLACK_ID; CHICAGO

Editor

-612.9

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 **SAMPLE SOIL PROPERTIES** VISUAL CLASSIFICATION Rec. Mois-Depth PID and Remarks (qa) No. E (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Silty CLAY (Cover Soils) M (CL-ML) Gray, Silty CLAY, Some Gravel, Some Cobbles (Cover Soils) (CL-ML) M M M Brown SAND and GRAVEL (Cover Soils) (SP/GP) M Dark Gray-Brown CLAY, Some Sand, Gravel and Cobbles (Cover Soils) (CL) M Dark Gray, Silty CLAY, Some Gravel (Cover Soils) (CL-ML) **GENERAL NOTES** WATER LEVEL OBSERVATIONS 6/12/96 ft. Upon Completion of Drilling \mathbb{Z} ft. Start 6/12/96 End While Drilling Steve Time After Drilling Rig AF10 Driller Terra Chief



LOG OF TEST BORING

Blackwell Landfill - NPL Site Project

DuPage County, Illinois Location

Boring No. Job No.

EW07 3920.0041

Sheet

2 of 5

Surface Elevation

772.9

Northing:

457.3

> `		<u> </u>	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000		-612.		
Rec. Mo	1 1	Depth	VISUAL CLASSIFICATION and Remarks	qu (qa)	PROPERTIES		
E (in.) tu	re Value	(ft.) - - -	Yellow to Olive-Brown, Silty, Clayey SAND and GRAVEL, Some Cobbles (Cover Soils) (SC-SM/GC-GM)	(tsf) M	(ppm)	Remarks	
		- - - 		М			
		— 20— - —	Dark Brown and Gray, Silty CLAY (Cover Soil) (CL-ML)	М			
		 	MUNICIPAL WASTE: Trace of Demolition Waste, Pieces of Wood, Also Some Scattered Municipal Waste, Paper, Plastic, Fabric	М			
		25	Dark Gray, Silty CLAY, Some Gravel (Cover Soils) (CL-ML)	М			
			MUNICIPAL WASTE: Small Pieces of Wood, Metal, Tin, Wiring, Cardboard, Plastic, Paper, Low Decomposition	D/M			
		- 30- - 	Gray, Silty CLAY, Some Gravel (Cover Soils)	D/M			



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW07 3920.0041

Job No.

3 of 5

Sheet Surface Elevation

772.9

Northing:

457.3

Easting: 2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 -612.9

SAMPLE Rec. Mois- N Depth							VISUAL CLASSIFICATION	SOIL PROPERTIES				
	No.	HOY.	Rec. (in.)		N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	PID		
						-	MUNICIPAL WASTE	D/M				
							Dark Gray, Silty CLAY, Some Gravel and Cobbles (Cover Soils) (CL-ML)	М				
						_	MUNICIPAL WASTE	D/M				
	\ *					40 -	Dark Gray, Silty CLAY, Some Cobble and Gravel (Cover Soils) (CL-ML)	М				
							MUNICIPAL WASTE: Rubber Hose, Wiring, Clothing, Small Pieces of Glass, Aerosol Cannister, Low Decomposition	D/M				
						45- 	Waste Mixed with Gray Clay and Gravel (Cover Soils) MUNICIPAL WASTE: Paper, Plastic, Cardboard, Fabric, Metal Bars, Stockings, Low Decomposition	D/M				
								D/M				



LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No. Job No.

EW07 3920.0041

Sheet

4 of 5

Surface Elevation Northing: 457.

772.9

Northing: Easting: 457.3 -612.9

						2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Easting:	-612.9		
	_	S	ΑM	PLE		VISUAL CLASSIFICATION		PROP	ERTIES	
No.	TY OF	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks	
					- - 50- -	MUNICIPAL WASTE: White Paper Product with Brown Clay, Sand Gravel and Cobbles, Low Decomposition	D/M			
_							D/M			
					- 55- - -	MUNICIPAL WASTE: Metal Stripping, Brown Glass, Clothing, Paper (Catalogs), Some Black Staining, Moderate Decomposition	М			
_							W			
					- 60-	MUNICIPAL WASTE: Construction Debris, Metal Piping, Pieces of Wood, Wire Fencing, Metal Stripping, Numerous Pieces of Wood	W			
							W/M			
					65-	Blue-Gray, Silty CLAY, Some Gravel (CL-ML)	М			



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW07 3920.0041

Job No. Sheet

5 of 5

Surface Elevation

772.9

Northing:

457.3

		Ü	ij		Locatio			Page C					i	Northin Easting:		457.; -612.		
SAMPLE				2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500 VISUAL CLASSIFICATION							-5000	-		PROPERTIES				
No.		Mois-				150		and F			qu (qa) (tsf)		PID (ppm)	Remarks				
				_ -		Extr	Enc	d of Boo	ring at (66.5 ft	5.0 ft							
				_														
				F														,
				70-	-													
				 														
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Depth to Water

Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF TEST BORING

Project Blackwell Landfill - NPL Site

Location DuPage County, Illinois

Boring No.
Job No.

EW08 3920.0041

Sheet

1 of 4

Surface Elevation
Northing: 328

754.1

Northing: Easting:

328.7 -301.1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000 SAMPLE SOIL PROPERTIES VISUAL CLASSIFICATION qu Rec. Mois-Ν PID Depth and Remarks (qa) No. (in.) ture Value (ft.) (ppm) Remarks (tsf) Dark Brown, Silty CLAY (CL-ML) M Gray-Brown CLAY, Some Gravel (Cover Soils) (CL) M M M M/W Brown CLAY, some Gravel and Cobbles (Cover Soils) (CL) Brown SAND and Gravel, Some Cobbles, Little W Clay (Cover Soils) (SP-SC/GP-SC) WATER LEVEL OBSERVATIONS **GENERAL NOTES** 6/13/96 ft. Upon Completion of Drilling 6/13/96 End While Drilling Start Time After Drilling Rig AF10 Driller Terra Chief Steve

Logger

Drill Method

DAP

PMS

J/3920\gint\BLACk ID: CHICAGO

Editor

MONTGOMERY WATSON



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW08 3920.0041

Job No. Sheet

2 of 4

Surface Elevation

754.1

Northing:

328.7

\	 	Ü	<i></i>		Location DuPage County, Illinois OO Corporate Drive, Addison, Illinois 60101, TEL. (708) 6	91-5000	Northing: Easting:	-301.	1	
			PLE		VISUAL CLASSIFICATION			SOIL PROPERTIES		
No.	Rec. (in.)	Mois- ture	N Value	Depth (ft.)	and Remarks		qu (qa) (tsf)	PID (ppm)	Remarks	
					Gray, Silty CLAY, Some Gravel (Cover Soils) (CL-ML)		M			
							M			
				- - -			М			
						30,00,00,00	M			
				- 25- - - -	MUNICIPAL WASTE: Some Garbage, Municipal Mixed in with Cover Material Mices of Wood, Fabric, Metal Stripping		M			
				- -			;;/- M			
				- 30- - - -	Difficult Logging Borehole Rest of the Way Due to Hole Caving from Above and Liquids Flowing into the Borehole. Able to Identify Some Municipal Refuse in Auger Buckets, but Very Limited. Appears to be Primarily		M			

MONTGOMERY WATSON



LOG OF TEST BORING

· · ,

Project Blackwell Landfill - NPL Site

DuPage County, Illinois Location

Boring No.

EW08 3920.0041

Job No. Sheet

3 of 4

Surface Elevation

754.1

Northing:

328.7

	2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-500	Easting:	-301.1
SAMPLE	VISUAL CLASSIFICATION		PROPERTIES
o. Rec. Mois- N Depth	and Remarks	qu (qa) (tsf)	PID (ppm) Remarks
	Municipal Waste; Clothing, Fabric, Paper, Plastic, Intermixed with Clay and Gravel Cover Material	M	
- - - - - -		М	
		М	
- 40-		М	
		М	
- 45-		М	
	Appears to be in Native Blue-Gray, Silty CLAY, Difficult to tell due to Liquids in Borehole	М	
		_	

MONTGOMERY WATSON



LOG OF TEST BORING

Project

Blackwell Landfill - NPL Site

Location

DuPage County, Illinois

Boring No.

EW08 3920.0041

Job No. Sheet

4 of 4

Surface Elevation

754.1

Northing:

328.7

(708) 691-5000 -301.1

	_						21	00 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000) -			
	SAMPLE							VISUAL CLASSIFICATION		SOIL PROPERT		
No	. 1	Rec.		Mois- ture	N Value	Depth (ft.)	and Remarks			PID (ppm)	Remarks	
							器					
	:					50-	2525	DI CO STR CLAY S. C. L(CLAY)				
						-		Blue Gray, Silty CLAY, Some Gravel (CL-ML)				
						_		End of Boring at 51.0 ft				
								Extraction Well Installed to 49.0 ft				
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GEOPHYSICAL SURVEY RESULTS

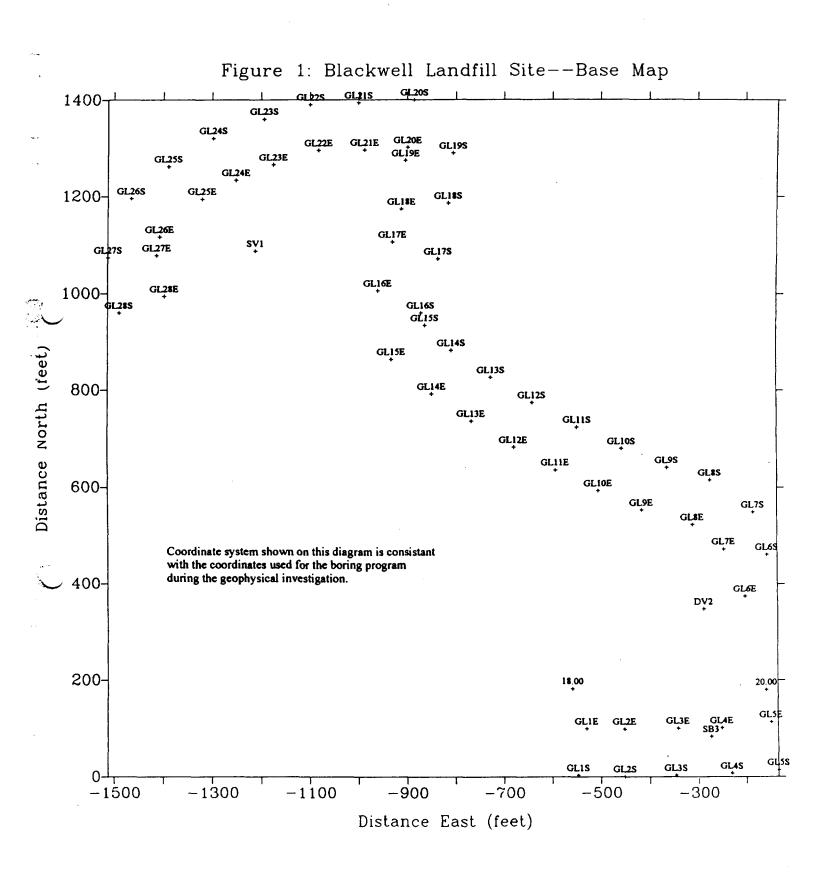
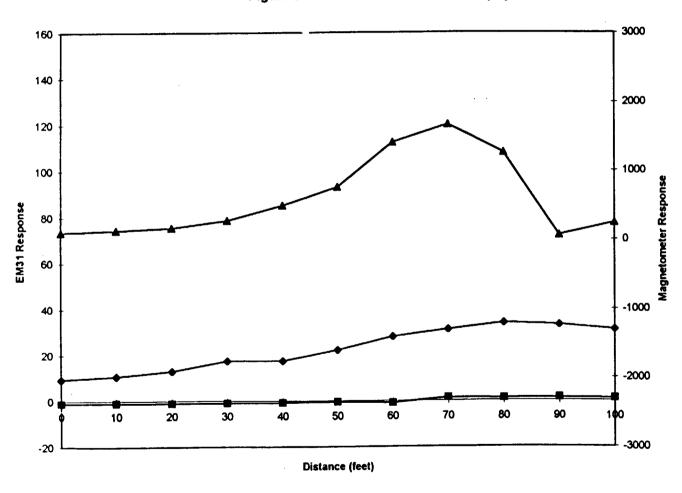


Table 1		SiteSummary	of Interpreted Results
	Stations approximating first	-	_
Line	20 feet of transitional zone.	Magnetic agreement	Comments
GL1	40-60	Good	
GL2	20-40	Good	
GL3	30-50	Medium	
GL4	40-60	Good	
GL5	50-70	Good	
GL6	30-50	Poor	Line paralles drive.
GL7	50-70	Medium	No abrupt transitional zone.
GL8	50-70	Medium	No abrupt transitional zone.
GL9	30-50	Poor	At 75ft. on line a well is approx.25 ft.off line.
GL10	10-30	Poor	
GL11	0-20	Poor	
GL12	20-40	Poor	
GL13	20-40	Poor	0-15ft. is on top of a berm.
GL14	Not apparent.	Medium	No obviouse indication of background.
GL15	Not apparent.	Medium	No obviouse indication of background.
			No obviouse indication of background and
GL16	Not apparent.	Medium	passes through a short cyclone gate.
			Readings at Oft. may be effected by a short
GL17	0-20	Medium	fence.
GL18	20-40	Poor	Well MH6 is near the 60 ft. mark.
GL19	20-40	Poor	Well SV5 is near the 90ft. mark.
			Line starts at edge of road and well DV9 is
GL20	30-50	Good	near the 60 ft. mark.
GL21	30-50	Good	Line starts at edge of road.
			Line starts at edge of road with culvert near
	1		the 10ft, mark and a storm drain near the 80ft
GL22	70- 30	Medium	mark.
			End of culvert approx. 20 ft. off line near the
GL23	50-70	Good	90ft, mark,
GL24	Not apparent.	Good	No abrupt transitional zone.
GL25	50-70	Good	First 50ft. on top of a berm
GL26	20-40	Poor	First 50ft. on top of a berm
GL27	Not apparent.	Medium	No obviouse indication of background.
			Firt 50ft. on top of berm with a large drainage
GL28	30-50	Poor	basin near the 80ft, mark.

Figure 2: Blackwell Landfill Site—Geophysical Results for Line 1



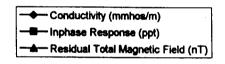
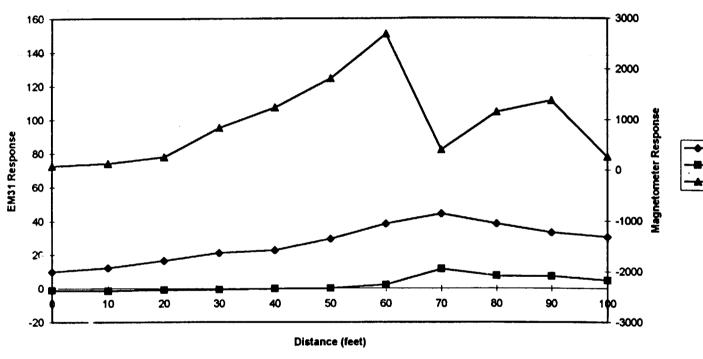


Figure 3: Blackwell Landfill Site--Geophysical Results for Line 2



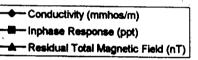
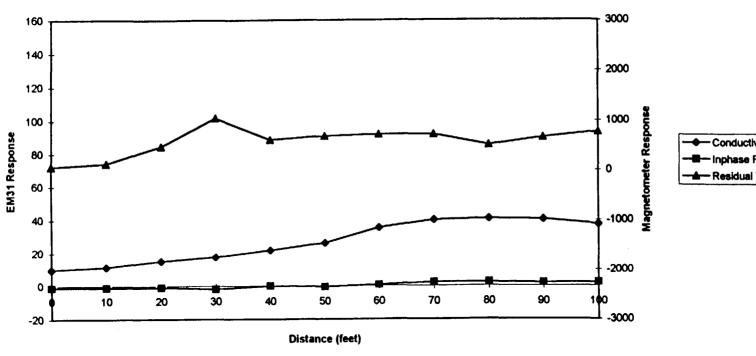


Figure 4: Blackwell Landfill Site-Geophysical Results for Line 3



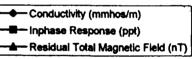
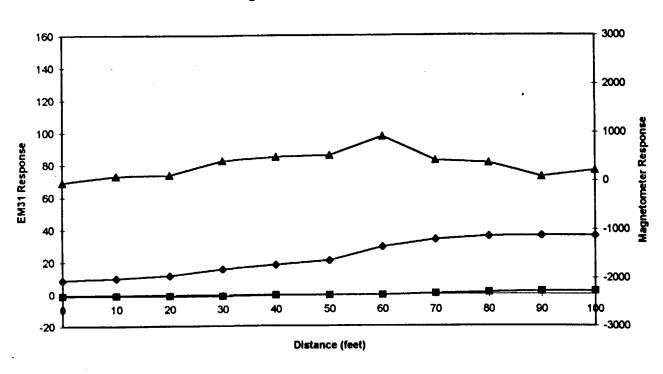


Figure 5: Blackwell Landfill Site-Geophysical Results for Line 4



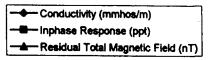
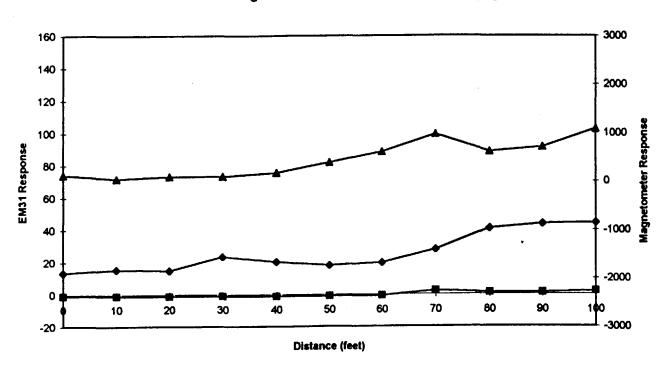


Figure 6: Blackwell Landfill Site-Geophysical Results for Line 5



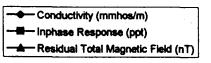
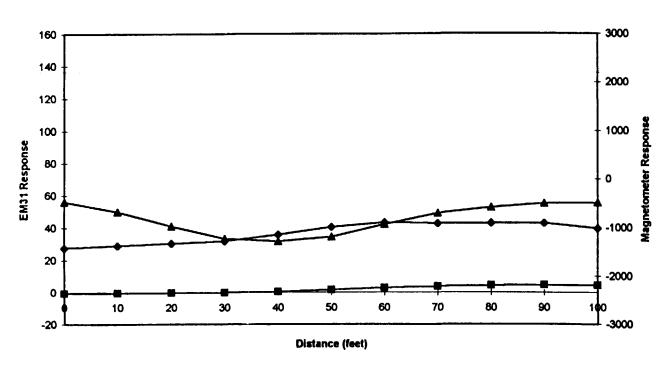


Figure 7: Blackwell Landfill Site-Geophysical Results for Line 6



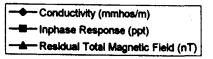
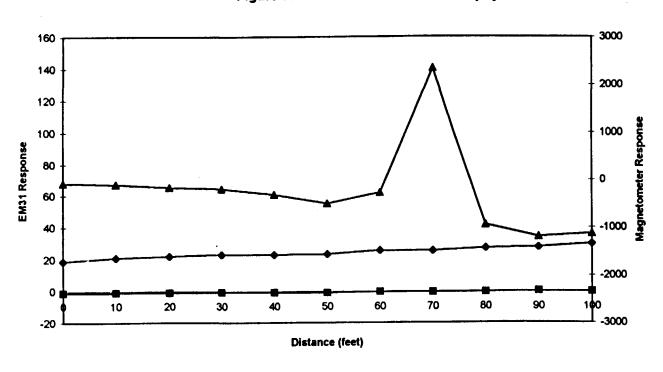


Figure 8: Blackwell Landfill Site-Geophysical Results for Line 7



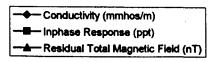
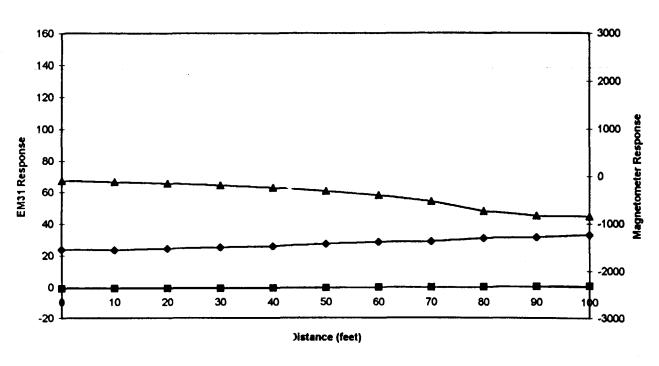


Figure 9: Blackwell Landfill Site-Geophysical Results for Line 8



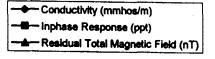
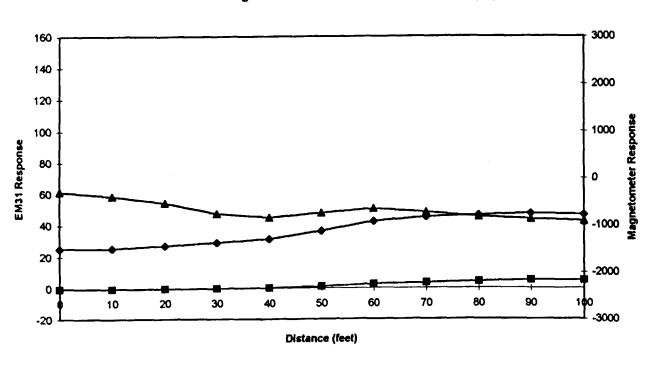


Figure 1 : Blackwell Landfill Site-Geophysical Results for Line 9



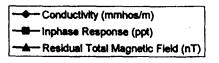
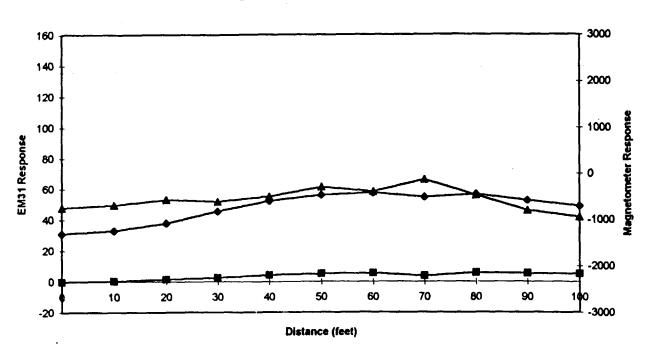


Figure 11: Blackwell Landfill Site-Geophysical Results for Line 10



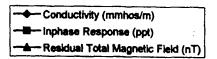
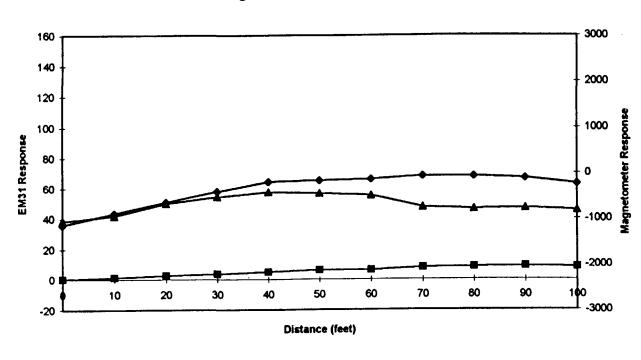


Figure 12: Blackwell Landfill Site-Geophysical Results for Line 11



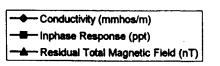
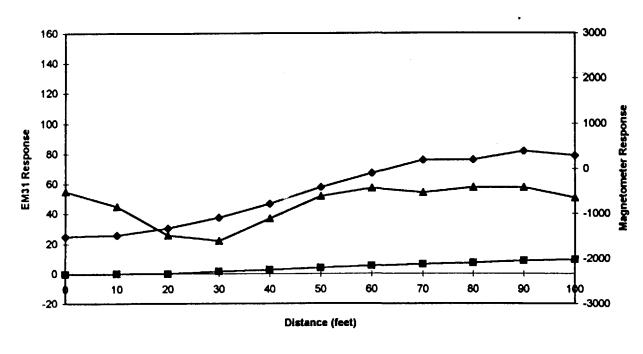
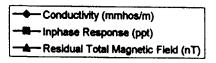


Figure 13: Blackwell Landfill Site-Geophysical Results for Line 12





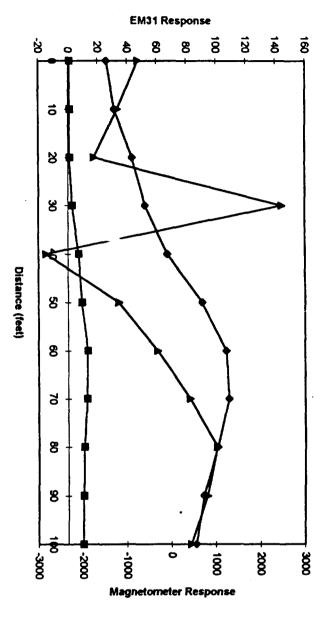


Figure 14: Blackwell Landfill Site-Geophysical Results for Line 13

Conductivity (mmhos/m)
Imphase Response (ppt)
A—Residual Total Magnetic Field (nT)

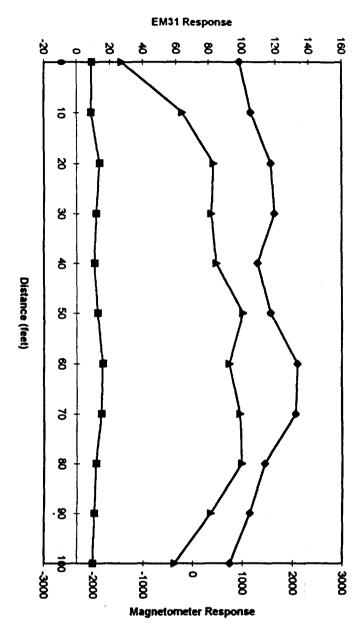


Figure 15: Blackwell Landfill Site-Geophysical Results for Line 14

Conductivity (mmhos/m)

Inphase Response (ppt)

Residual Total Magnetic Field

Figure 16: Blackwell Landfill Site-Geophysical Results for Line 15

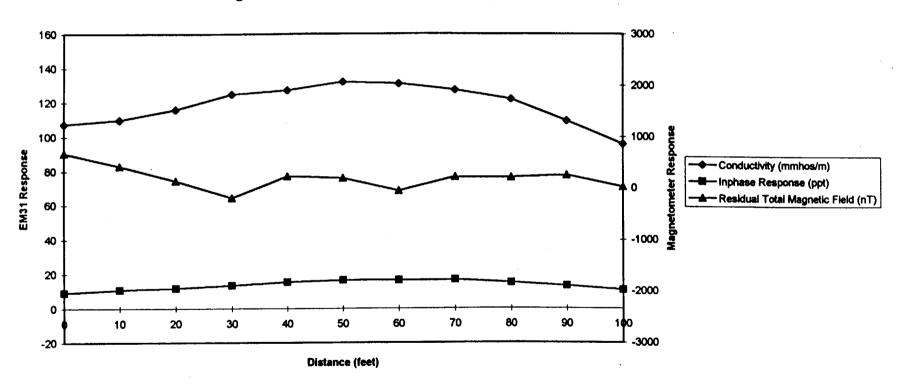
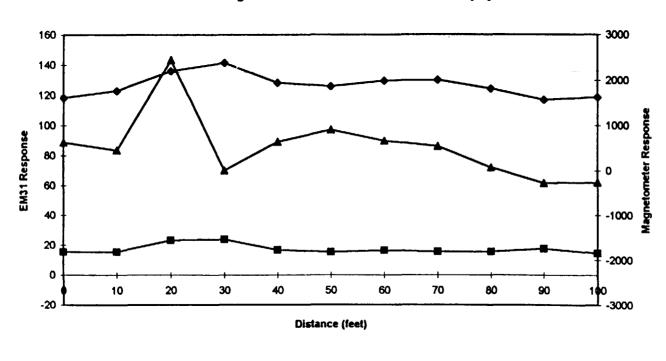


Figure 17: Blackwell Landfill Site-Geophysical Results for Line 16



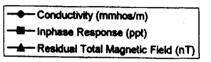
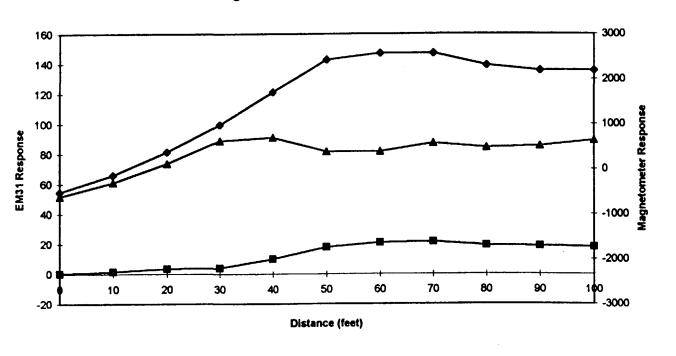


Figure 1: Blackwell Landfill Site-Geophysical Results for Line 17



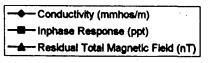


Figure 19: Blackwell Landfill Site-Geophysical Results for Line 18

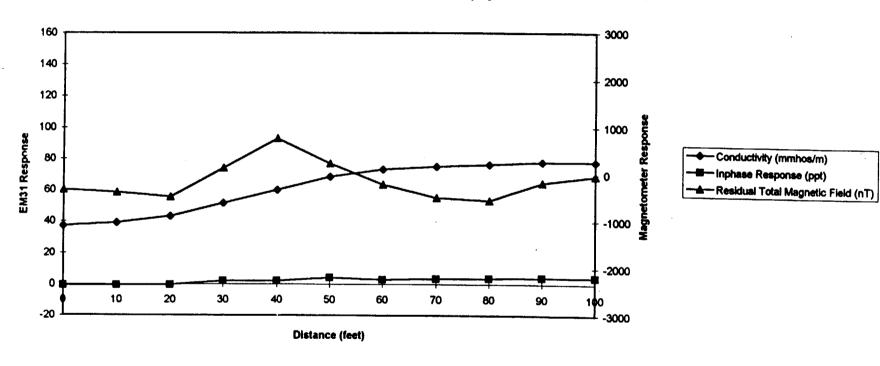
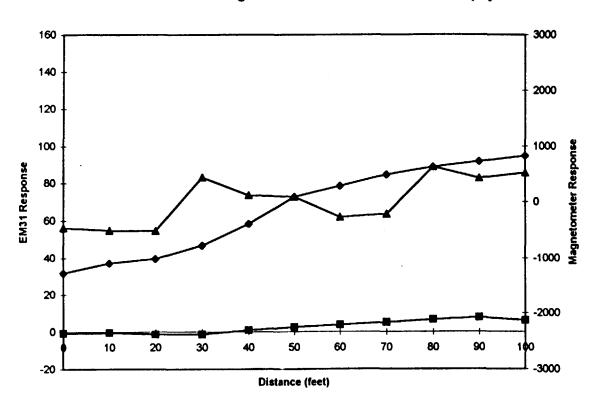


Figure 20: Blackwell Landfill Site--Geophysical Results for Line 19



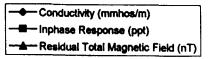
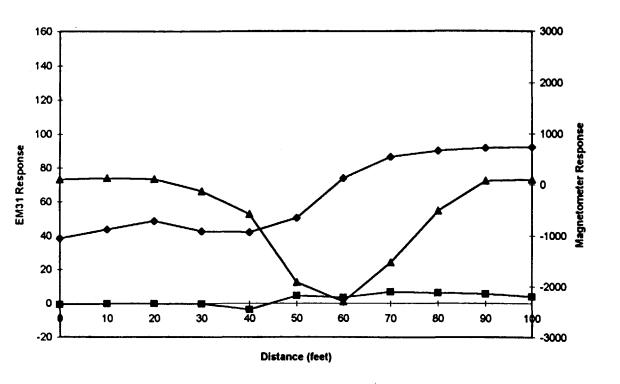


Figure 21: Blackwell Landfill Site-Geophysical Results for Line 20



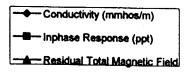
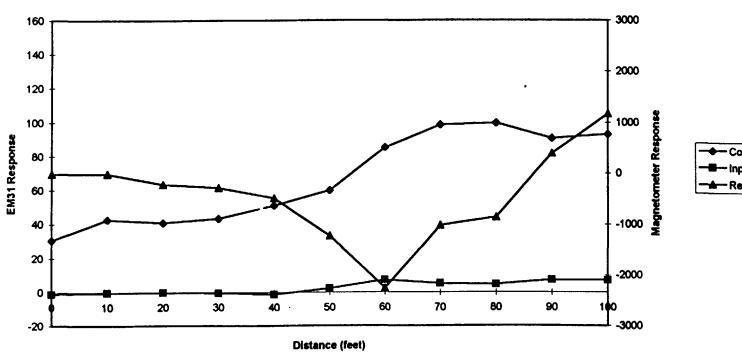


Figure 22: Blackwell Landfill Site-Geophysical Results for Line 21



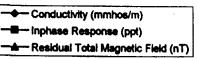
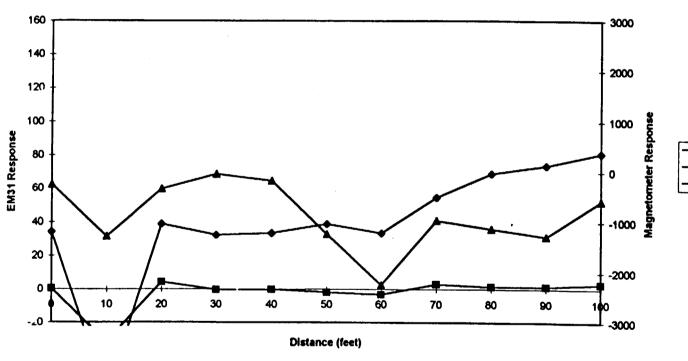


Figure 23: Blackwell Landfill Site—Geophysical Results for Line 22



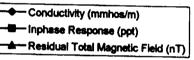


Figure 24: Blackwell Landfill Site-Geophysical Results for Line 23

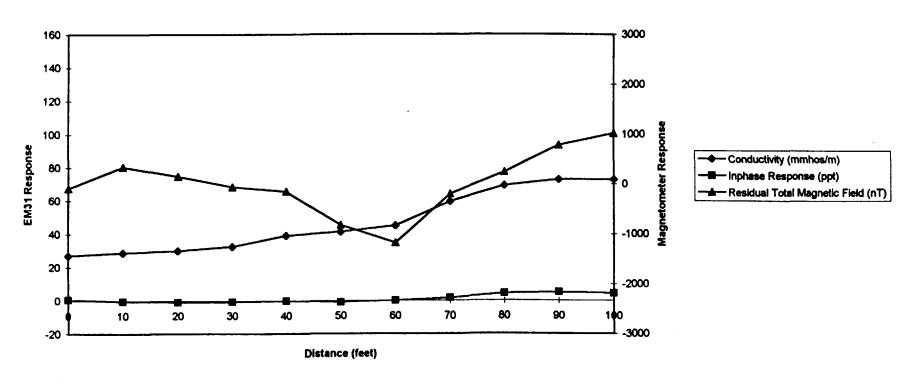
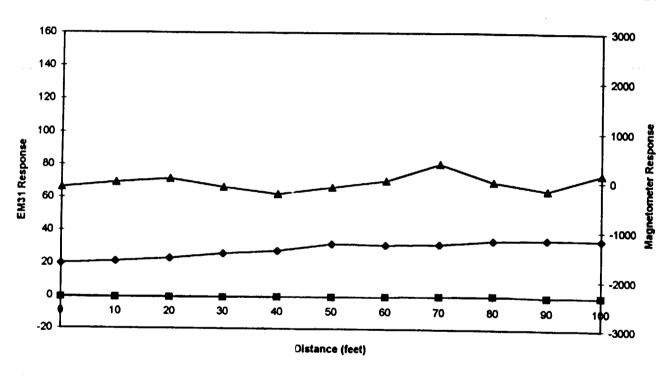


Figure 25: Blackwell Landfill Site-Geophysical Results for Line 24



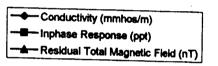
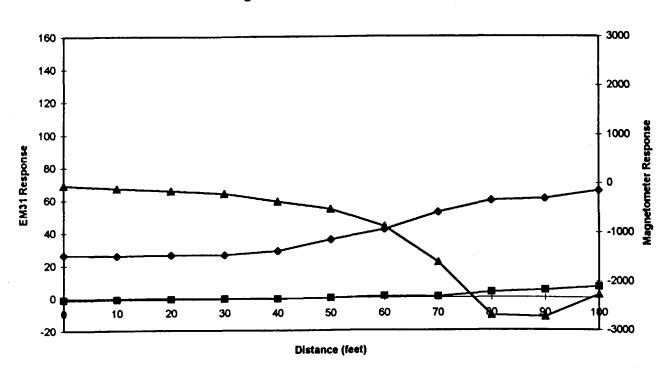


Figure 2: Blackwell Landfill Site-Geophysical Results for Line 25



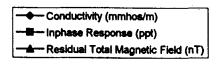
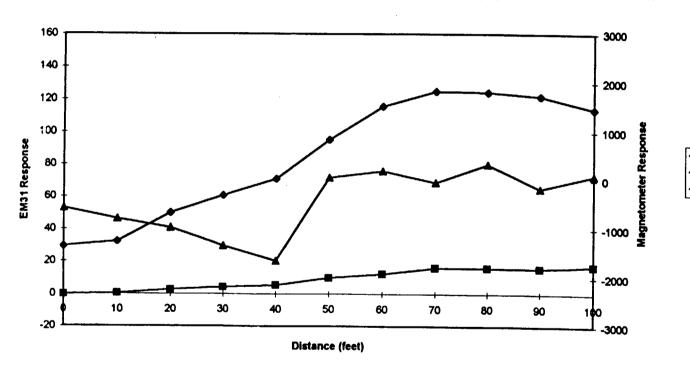


Figure 27: Blackwell Landfill Site-Geophysical Results for Line 26



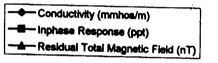
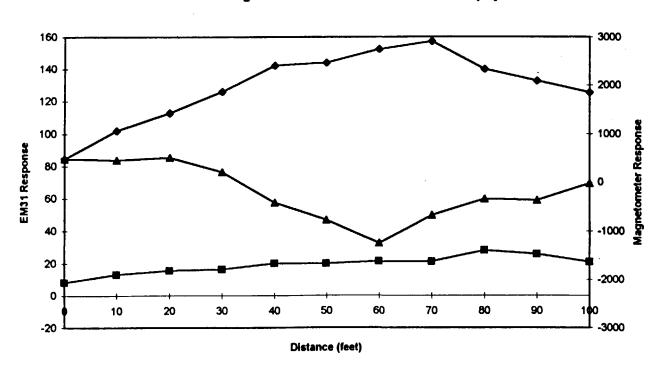


Figure 28: Blackwell Landfill Site-Geophysical Results for Line 27



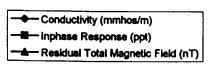
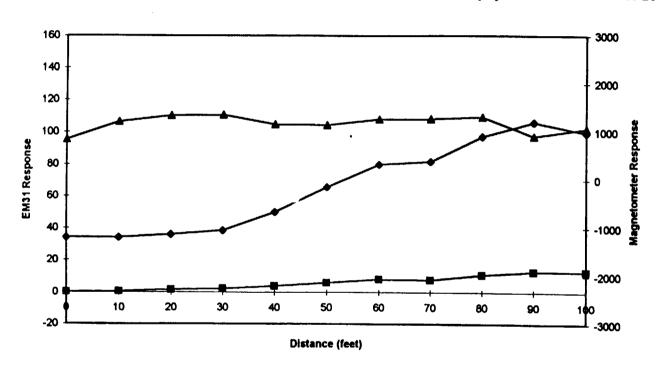
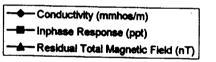


Figure 29: Blackwell Landfill Site-Geophysical Results for Line 28





Appendix A: Blackwell Landfill Site --Electromagnetic and Magnetic Data

Appendix A: Blackwell Landfill Site-Electromagnetic and Magnetic Data

Line	Distance	Conductivity	Inphase Response	Residual Total Magnetic
Number	(feet)	(mmhos/m)	(ppt)	Field (nT)
1	0	9.4	-1.2	113
1	10	10.6	-1.1	138
1	20	12.8	-1.2	178
1	30	17.4	-1.0	285
1	40	17.4	-0.9	500
1	50	22.0	-0.6	764
1	60	27.8	-1.0	1409
1	70	30.8	1.2	1666
1	80	33.6	0.9	1261
1	90	32.8	1.2	63
1	100	31.0	0.9	244
2	0	10.0	-1.2	84
	10	12.2	-1.5	136
2 2	20	16.4	-0.8	266
2	30	21.0	-0.7	841
2	40	22.6	-0.2	1244
2	50	29.2	0.1	1818
2	60	38.2	2.2	2696
2 2	70	44.2	11.4	399
2	80	38.2	7.6	1147
2	90	33.0	7.3	1374
2	100	30.4	4.7	266
3	0	10.0	-1.2	72
3	10	11.4	-1.1	137
3	20	15.2	-1.0	489
3	30	17.8	-1.8	1054
3	40	21.8	0.0	617
3	50	26.2	-0.7	689
3	60	35.4	0.7	722
3	70	40.0	2.1	719
3	80	40.8	2.3	503
3	90	40.4	1.9	661
3	100	37.6	2.2	773
4	0	8.8	-1.0	-29
4	10	10.0	-1.0	101
4	20	11.6	-1.1	121
4	30	15.6	-1.3	413
4	40	18.2	-0.5	494
4	50	20.8	- 0.7	532
4	60	29.2	-0.7	919
4	70	33.8	0.5	426
4	80	35.8	1.3	370
4	90	36.2	1.8	82
4	100	36.2	1.9	216
5	0	13.4	-1.0	136
5	10	15.4	-1.0	55
5	20	14.8	-1.2	103
5	30	23.4	-1.1	103
5	40	20.2	-1.2	178
•	70	20.2	-1.4	170

Line	Distance	Conductivity	Inphase Response	Residual Total Magnetic
Number	(feet)	(mmhos/m)	(ppt)	Field (nT)
5	50	18.0	-1.0	389
5	60	19.6	-0.8	608
5	70	27.8	2.1	978
5	80	40.8	0.9	617
5	90	43.6	1.1	710
5	100	44.4	2.0	1088
6	0	27.6	-0.6	-4 87
´ 6	10	29.0	-0.4	-675
8	20	30.4	-0.3	- 9 71
6	30	31.8	0.0	-1219
6	40	35.8	0.5	-1283
6	50	40.4	1.6	-1186
ě	60	43.2	2.8	-933
8	70	42.6	3.5	-708
6	80	42.8	4.2	-590
	90	42.8	4.7	-506
6	100	39.6	4.4	-490
6 7	0	18.8	-1.2	-69
7	10	21.0	-1.0	-96
<u>'</u>	20	22.0	-0.9	-154
7	30	23.0	-0.8	-191
7	40	23.0	-0.8	-308
7	4 0 50	23.4	-0.9	-500
7		25. 6	-0.4	-269
7	60 70	25.4	-0.5	2343
7	70	27.0	-0.5	-945
7	80	27.6	0.0	-1195
7	90	29.8	-0.1	-1127
7	100	23.8	-0.9	-91
8	0	23.4	-0.9	-118
8	10	24.2	-0.9	-149
8	20	25.2	-0.8	-190
8	30	25.8	-0.7	-244
8	40 50	27.2	-0.7	-319
8	50 60	28.4	-0.4	-404
8	70	28.8	-0.3	-535
8	80	30.8	-0.1	-745
8	90	31.4	0.3	-837
8	100	33.0	0.7	-844
8	0	25.0	-0.7	-292
8	10	25.2	-0.6	-388
9	20	27.0	-0.5	-529
9	30	29.0	-0.3	-756
9	40	31.2	0.1	-843
8 9	50	38.4	0.9	-7 47
9	50 60	42.4	2.4	-854
9	70	45.0	3.2	-733
8	80	46.2	4.1	-827
8	90	47.2	4.8	-871
8	90	-7 / · ibo	•••	

Appendix A: Blackwell Landfill Site--Electromagnetic and Magnetic Data

Line	Distance	Conductivity	Inphase Response	Residual Total Magnetic
Number	(feet)	(mmhos/m)	(ppt)	Field (nT)
9	100	46.6	4.9	-912
10	0	31.2	0.0	-742
10	10	33.0	0.4	-682
10	20	37.8	1.4	-568
10	30	45.4	2.6	-605
10	40	52.2	4.2	-497
10	50	56.0	5.1	-299
10	60	57.4	5.3	-390
10	70	54.4	3.7	-137
10	80	56.4	5.7	-477
10	90	52.4	5.3	-806
10	100	48.8	5.0	-942
11	0	35.8	0.3	-1054
11	10	43.4	1.3	-941
11	20	50.8	2.6	-677
11	30	57.8	3.8	-522
11	40	64.2	4.9	-421
11	50	65.0	6.3	-445
11	60	65.8	6.2	493
11	70	68.0	8.0	-754
11	80	67.8	8.4	-795
11	90	66.6	8.8	-769
11	100	63.0	8.4	-811
12	0	24.8	-0.2	-501
12	10	25.6	-0.1	-840
12	20	30.4	-0.1	-1478
12	30	37.4	1.4	-1596
12	40	46.8	2.6	-1101
12	50	57.6	3.9	-609
12	60	66.8	5.2	-431
12	70	75.6	6.2	-534
12	80	75.8	7.1	-421
12	90	81.6	J.5	-420
12	100	78.6	9.3	-647
13	0	26.2	0.8	-756
13	10	31.4	1.0	-1221
13	20	43.2	1.0	-1751
13	30	52.2	2.7	2483
13	40	67.2	7.1	-2826
13	50	90.6	9.1	-1193
13	60	106.8	13.2	-313
13	70	108.6	12.7	414
13	80	101.0	10.8	1028
13	90	91.8	10.3	803
13	100	86.8	10.0	443
14	0	98.6	9.2	-1428
14	10	105.4	8.9	-200
14	20	117.2	13.8	424
14	30	119.4	11.9	382

Appendix A: Blackwell Landfill Site-Electromagnetic and Magnetic Data

Number (feet) (mmhos/m) (ppt) Field (nT) 14	Line	Distance	Conductivity	Inphase Response	Residual Total Magnetic
14				•	Field (nT)
14 50 117.0 12.6 1015 14 60 133.2 15.8 738 14 70 132.0 14.8 955 14 80 113.4 11.6 982 14 90 104.4 10.5 380 15 10 107.4 9.1 684 15 10 109.8 10.8 434 15 20 115.8 11.7 145 15 30 124.8 13.4 -188 15 40 127.2 15.3 232 15 80 130.8 16.4 54 15 70 127.2 18.6 213 15 80 121.8 14.9 207 15 80 109.2 13.1 252 15 90 109.2 13.1 252 15 100 98.0 10.8 24 16 0 118.2 15.8 627 17 18 18 20 130.2 15.4 453 18 20 130.2 15.4 453 18 60 122.4 16.7 643 18 60 122.5 18.6 18.7 643 18 60 128.4 16.7 643 18 60 129.5 18.4 681 18 70 130.2 15.5 544 18 80 124.2 15.5 554 18 80 124.2 15.5 554 18 90 117.0 17.7 -276 18 10 128.4 16.7 643 18 60 129.5 18.4 681 18 70 130.2 15.5 544 18 80 124.2 15.5 554 18 80 124.2 15.5 554 18 90 117.0 17.7 -276 18 10 18.8 14.5 -283 17 0 54.6 0.3 -614 18 70 130.2 15.5 544 18 80 124.2 15.8 630 17 40 121.2 9.8 700 17 50 142.8 17.8 387 17 10 66.0 1.4 228 17 70 130.2 15.5 544 18 80 124.2 15.4 681 17 70 130.2 15.5 544 18 80 124.2 15.5 554 18 80 124.2 15.8 630 17 40 121.2 9.8 700 17 50 142.8 17.8 387 17 60 147.0 20.8 381 17 70 147.0 20.8 381 17 90 135.6 18.7 515 17 100 135.6 18.7 515 18 10 39.0 -0.7 -386 18 10 39.0 -0.7 -386 18 10 39.0 -0.7 -386 18 20 43.2 -0.5 -481 18 30 51.6 1.9 130 18 60 73.2 2.9 -218 18 60 73.2 2.9 -218 18 60 73.2 2.9 -218 18 60 73.2 2.9 -218					482
14 80 133.2 15.8 738 14 70 132.0 14.8 955 14 80 113.4 11.6 982 14 90 104.4 10.5 360 14 100 92.4 9.6 367 15 0 107.4 9.1 854 15 10 109.8 10.8 434 15 20 115.8 11.7 145 15 30 124.8 13.4 -188 15 40 127.2 15.3 232 15 50 132.0 16.4 191 15 80 130.8 16.4 554 15 70 127.2 16.6 213 15 80 121.8 14.9 207 15 80 121.8 14.9 207 15 80 121.8 14.9 207 15 80 121.8 14.9 207 15 80 121.8 14.9 207 16 0 18.2 15.6 627 17 18 10 123.0 15.4 453 18 10 123.0 15.4 453 18 50 128.4 16.7 843 18 50 128.6 16.4 861 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 18 70 130.2 15.5 544 19 17 10 66.0 1.4 681 17 10 66.0 1.4 29.8 700 17 70 147.0 20.8 381 17 40 121.2 9.8 700 17 70 147.0 20.8 381 17 70 147.0 20.8 381 18 70 135.6 18.7 515 18 10 39.0 -0.7 386 18 10 39.0 -0.7 386 18 10 39.0 -0.7 386 18 20 43.2 -0.5 481 18 30 51.6 1.9 130 18 60 75.2 29 -218 18 50 68.4 4.0 20 18					1015
14 70 132.D 14.8 955 114 80 113.4 11.6 982 14 100 92.4 9.6 -387 15 0 107.4 9.1 684 15 10 109.8 10.8 434 15 20 115.8 11.7 145 15 30 124.8 13.4 -188 15 40 127.2 15.3 232 15 50 132.D 16.4 191 15 80 130.8 16.4 -54 15 70 127.2 16.6 213 15 90 109.2 13.1 252 15 90 109.2 13.1 252 15 90 109.2 13.1 252 15 100 98.0 10.8 24 16 0 118.2 15.6 627 18 10 123.0 15.4 453 18 30 124.8 18.7 943 18 60 128.4 18.7 943 18 60 129.6 16.4 681 18 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 544 19 70 130.2 15.5 554 19 80 124.2 15.4 681 10 128.6 18.4 681 11 70 130.2 15.5 544 11 80 124.2 15.4 85 11 80 124.2 15.4 85 11 80 124.2 15.4 85 11 80 124.2 15.4 85 11 80 124.2 15.4 85 11 80 124.2 15.4 85 11 90 117.0 17.7 -278 11 90 130.8 381 11 90 117.0 17.7 -278 11 90 130.8 381 11 17 10 68.0 14.5 283 11 17 10 68.0 14.5 283 11 17 10 12.2 9.8 700 11 17 10 12.2 9.8 700 11 17 10 12.2 9.8 700 11 17 90 135.8 18.7 515 11 10 130.0 17.8 387 11 17 10 130.0 135.8 18.7 515 11 18 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 10 39.0 -0.7 -386 118 18 18 18 18 18 18 18 18 18 18 18 18					738
14 80 113.4 11.6 982 144 90 104.4 10.5 380 144 90 104.4 10.5 380 144 1000 92.4 9.8 -367 15 0 107.4 9.1 684 15 10 109.8 10.8 434 15 20 115.8 11.7 145 15 30 124.8 13.4 -188 15 40 127.2 15.3 232 15 50 132.0 16.4 191 15 60 130.8 16.4 -54 15 70 127.2 18.6 213 15 80 121.8 14.9 207 15 90 109.2 13.1 252 15 100 98.0 10.8 24 16 0 118.2 15.6 627 16 10 123.0 15.4 453 16 20 138.2 23.3 2451 16 30 141.8 23.8 7 16 16 40 128.4 16.7 643 16 50 129.5 16 16 10 120.0 15.3 908 18 60 129.5 18.6 661 18 70 130.2 15.5 544 16 70 130.2 15.5 544 16 70 130.2 15.5 544 17 10 66.0 15.3 908 18 60 129.5 18.4 661 16 70 130.2 15.5 544 16 90 117.0 17.7 -278 16 100 18.8 14.5 -263 17 0 54.6 0.3 -614 17 10 66.0 1.8 3.5 127 17 30 99.8 3.8 630 17 7 10 68.0 1.4 29.8 17 7 10 68.0 1.4 29.8 17 7 10 18.8 14.5 -263 17 7 10 68.0 1.4 20.3 87 70 147.0 20.8 381 17 7 7 147.0 20.8 381 17 7 7 147.0 20.8 381 17 7 7 147.0 20.8 381 17 7 10 135.8 18.3 3.5 127 17 10 135.8 18.3 3.5 127 17 10 135.8 18.3 3.5 127 17 10 135.8 18.3 3.5 127 17 10 135.8 18.7 50 142.8 17.8 387 17 10 135.8 18.1 3.5 127 3.8 630 139.2 19.1 450 139.2 19.1 145.0 139.2 19.1 145.0 139.2 19.1 130 135.8 18.1 10 39.0 -0.7 -388					955
14 90 104.4 9.8 -387 15 0 107.4 9.1 684 15 10 109.8 10.8 434 15 20 115.8 11.7 145 15 30 124.8 13.4 -188 15 40 127.2 15.3 232 15 50 132.0 16.4 191 15 60 130.8 18.4 -54 15 70 127.2 16.6 213 15 80 121.8 14.9 207 15 90 109.2 13.1 252 15 100 98.0 10.8 24 16 0 118.2 15.6 627 18 10 123.0 15.4 453 18 20 138.2 23.3 2451 18 30 141.6 23.8 7 18 40 128.4 16.7 643 18 60 129.5 18.4 681 18 70 130.2 15.5 544 19 10 18.8 14.9 207 11 17 10 68.0 15.3 908 11 18 80 121.8 16.7 643 11 17 10 68.0 15.3 908 11 18 80 121.8 16.7 643 11 17 10 68.0 15.4 681 11 17 10 68.0 15.4 681 11 17 10 68.0 15.4 681 11 17 10 68.0 14.4 298 11 17 20 81.6 3.5 127 11 18 30 99.8 3.8 630 11 17 0 54.8 0.3 -614 11 7 70 130.2 15.5 127 11 80 139.2 19.1 480 11 7 90 135.6 18.7 572 11 80 139.2 19.1 480 11 7 90 135.6 18.7 572 11 80 139.2 19.1 480 11 7 90 135.6 18.7 572 11 80 139.2 19.1 480 11 7 90 135.6 18.7 515 11 7 10 135.6 18.7 515 11 7 10 135.6 18.7 515 11 7 10 135.6 18.1 634 18 0 37.2 -0.6 -324 18 10 39.0 -0.7 -3366 18 50 68.4 4.0 230 18 60 73.2 2.9 -218 18 50 68.4 4.0 230 18 60 73.2 2.9 -218 18 60 73.2 2.9 -218 18 60 73.2 2.9 -218 18 60 73.2 2.9 -218					982
14 100 92.4 9.8 -367 15 0 107.4 9.1 684 15 10 109.8 10.8 434 15 20 115.8 11.7 145 15 30 124.8 13.4 -188 15 40 127.2 15.3 232 15 50 132.0 16.4 191 15 60 130.8 18.4 -54 15 70 127.2 18.6 213 15 80 121.8 14.9 207 15 90 109.2 13.1 252 15 100 96.0 10.8 24 16 0 118.2 15.5 627 18 10 123.0 15.4 453 18 20 138.2 23.3 2451 18 30 141.6 23.8 7 18 40 128.4 16.7 643 18 60 129.5 16.4 681 18 60 129.5 16.4 681 18 60 129.5 16.4 681 18 60 129.6 18.4 681 18 70 130.2 15.5 544 17 20 81.8 14.5 -263 17 10 66.0 1.4 298 17 20 81.6 3.5 127 17 30 99.8 3.8 630 17 40 121.2 9.8 700 17 50 142.8 17.8 387 17 70 147.0 20.8 381 17 70 147.0 20.8 381 17 70 147.0 20.8 381 17 70 147.0 20.8 381 17 70 147.0 20.8 381 17 70 147.0 20.8 381 17 90 135.6 18.1 634 18 10 39.0 -0.7 -386 18 10 39.0 -0.7 -386 18 10 39.0 -0.7 -386 18 10 39.0 -0.7 -386 18 10 39.0 -0.7 -386 18 30 51.6 1.9 130 18 50 68.4 4.0 230 18 50 68.4 4.0 230 18 50 68.4 4.0 230 18 50 68.4 4.0 230 18 60 73.2 2.9 -218 18 50 68.4 4.0 230 18 60 73.2 2.9 -218 18 50 68.4 4.0 230					360
15 0 107.4 9.1 684 15 10 109.8 10.8 434 15 20 115.8 11.7 145 15 30 124.8 13.4 -188 15 40 127.2 15.3 232 15 50 132.0 16.4 191 15 60 130.8 16.4 -54 15 70 127.2 16.6 213 15 80 121.8 14.9 207 15 90 109.2 13.1 252 15 100 96.0 10.8 24 16 0 118.2 15.5 627 18 10 123.0 15.4 453 16 20 135.2 23.3 2451 16 30 141.8 23.8 7 16 30 141.8 23.8 7 16 40 128.4 16.7 643 16 50 120.6 15.3 908 16 60 129.6 16.4 661 16 70 130.2 15.5 544 16 90 117.0 17.7 278 16 100 118.8 14.5 -263 17 0 54.6 0.3 -614 17 10 66.0 1.4 -298 17 20 81.8 3.5 127 17 30 99.8 3.8 630 17 40 121.2 9.8 700 17 70 147.0 21.4 572 17 80 135.2 19.8 700 17 99.8 3.8 630 17 70 147.0 21.4 572 17 80 135.6 18.7 515 18 70 75.0 3.4 480 18 70 75.0 3.4 480 18 30 51.6 18.7 515 17 100 135.6 18.1 634 18 0 37.2 -0.6 -324 18 10 39.0 -0.7 -386 18 20 43.2 2.9 -216 18 50 68.4 4.0 230 18 60 73.2 2.9 -216 18 60 73.2 2.9 -216 18 60 73.2 2.9 -216 18 60 73.2 2.9 -216					-367
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15 60 130.8 18.4 -54 15 70 127.2 18.6 213 15 80 121.8 14.9 207 15 90 109.2 13.1 252 15 100 98.0 10.8 24 16 0 118.2 15.6 627 18 10 123.0 15.4 453 18 20 138.2 23.3 2451 18 50 128.0 15.3 908 18 60 129.6 18.4 681 18 70 130.2 15.5 544 18 90 117.0 17.7 -276 18 90 117.0 17.7 -276 18 10 18.8 14.5 -263 17 0 54.6 0.3 -614 17 10 68.0 1.4 -298 17 20 81.6 3.5 127 17 30 99.6 3.6 630 17 40 121.2 9.8 700 17 70 147.0 20.8 381 17 70 147.0 20.8 381 17 70 147.0 20.8 381 17 90 135.8 18.7 515 17 10 135.8 18.7 515 17 10 135.8 18.7 515 17 10 135.8 18.7 515 17 10 135.8 18.7 515 17 10 135.8 18.7 515 17 10 135.8 18.7 515 18 10 37.2 -0.6 -324 18 10 39.0 -0.7 -386 18 20 43.2 -0.5 -481 18 30 51.6 1.9 130 18 40 80.0 2.0 762 18 50 68.4 4.0 230 18 60 73.2 2.9 -216 18 60 73.2 2.9 -216					
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	18	80	/6.2	3.0	•••

Appendix A: Blackwell Landfill Site-Electromagnetic and Magnetic Data

Line	Distance	Conductivity	Inphase Response	Residual Total Magnetic
Number	(feet)	(mmhos/m)	(ppt)	Field (nT)
18	90	78.0	4.1	-179
18	100	78.0	4.4	-41
19	0	31.8	-0.7	-461
19	10	37.2	-0.6	-510
19	20	39.6	-1.3	-518
19	30	46.8	-1.5	441
19	40	58.2	0.8	119
19	50	72.6	2.5	87
19	60	78.6	3.6	-271
19	70	84.6	4.8	-221
19	80	88.8	6.3	627
19	90	91.8	7.6	423
19	100	94.8	6.0	521
20	0	38.4	-0.7	109
20	10	43.8	-0.2	135
20	20	48.6	-0.1	110
20	30	42.6	-0.4	-125
20	40	42.0	-3.7	-581
20	50	50.4	4.6	-1918
20	60	73.8	3.4	-2300
20	70	86.4	6.8	-1533
20	80	90.0	6.3	-515
20	90	91.8	5.8	74
20	100	92.4	3.9	99
21	0	30.6	-1.1	-15
21	10	42.6	-0.3	-18
21	20	40.8	-0.3	-217
21	30	43.2	-0.5	-284
21	40	51.0	-0.5 -1.4	-486
21	50	60.0	2.2	-1221
21	60	85.2	7.2	-2253
21	70	98.4	5.1	-1026
21	80	99.6	4.5	-866
21	90	90.6	7.3	387
21	100	93.0	7.0 7.0	1167
22	0	34.2	0.5	-255
22	10	-61.8	-31.6	-1281
22	20	39.0	4.2	-345
22	30	32.4	-0.4	-343 -48
22	40	33.6	-0.4	-183
22	50	39.0	-0.2 -2.0	-123 4
22	60	33.6		
22	70	54.6	-3.2 3.1	-2241 -968
22	80	69.0	3.1 1.5	
22	90	73.8		-1130 1390
22	100		1.6	-1289 -570
23	0	81.0 27.0	3.1	-579
23 23	10		0.7	-90 346
23 23	20	28.8	-0.5	346
23	20	30.0	-0.9	152

		₩ #	• "	
Line	Distance	Conductivity	Inphase Response	Residual Total Magnetic
Number	(feet)	(mmhos/m)	(ppt)	Field (nT)
23	30	32.4	-0.7	-62
23	40	39.0	-0.2	-155
23	50	41.4	-0.9	-817
23	60	45.0	0.1	-1176
23	70	59.4	1.5	-202
23	80	69.0	4,3	235
23 23	90	72.6	5.0	779
23	100	72.6	4.5	1022
24	0	19.8	-0.7	-130
24	10	21.0	-0.8	-25
24	20	22.8	-0.9	43
	30	25.8	-0.9	-123
24	40	27.6	-0.5	-260
24	50	31.8	-0.3	-126
24	60	31.2	-0.2	12
24		31.8	0.2	357
24	70 00	34.2	0.6	-5
24	80	34.8	-0.3	-179
24	90	34.8	0.1	153
24	100	26.4	-0.9	-33
25	0	25.8	-0.9	-100
25	10	25.8 26.4	-0.7	-145
25	20		-0.6	-200
25	30	26.4	-0.5	-368
25	40	28.8	0.2	-519
25	50	36.0	1.1	-876
25	60	42.0	0.7	-1606
25	70	52.2 50.4	3.2	-2698
25	80	59.4	4.7	-2730
25	90	60.6 65.4	6.8	-2270
25	100	29.4	-0.1	-573
26	0	29.4 32.4	0.5	-791
26	10		2.8	-973
26	20	49.8	4.2	-1346
26	30	60.6 70.8	5.4	-1859
26	40	95.4	9.9	53
26	50		12.4	198
26	60	115.8	16.1	-44
26	70	124.8	16.0	335
26	80	. 124.2	15.6	-169
26	90	121.8	17.3	101
26	100	114.0	8.1	489
27	0	84.6 403.0	13.2	485
27	10	102.0	15.5	518
27	20	112.8	16.4	216
27	30	126.0	20.0	-422
27	40	142.2	20.0	-778
27	50	144.0	21.4	-1247
27	60	152.4	21.2	-681
27	70	157.2	£1.£	

Appendix A: Blackwell Landfill Site--Electromagnetic and Magnetic Data

Line	Distance	Conductivity	Inphase Response	Residual Total Magnetic
Number	(feet)	(mmhos/m)	(ppt)	Field (nT)
27	80	139.8	27.9	-350
27	90	132.6	25.8	-378
27	100	125.4	20.9	-25
28	0	34.2	0.0	847
28	10	34.2	0.6	1207
28	20	36.0	1.4	1338
28	30	38.4	2.1	1349
28	40	49.8	3.8	1158
28	50	65.4	5.6	1140
28	60	79.8	8.0	1262
28	70	81.6	7.6	1273
28	80	97.2	10.7	1312
28	90	106.2	12.8	916
28	100	99.6	12.7	1076

Appendix B: Blackwell Landfill Site --Coordinates of Survey Features

Appendix B: Blackwell Landfill Site--Coordinates of Survey Features

	Location of St	tation at Site is
Station	East (feet)	
18	-558	182
20	-158	180
DV2	-288	347
GL10E	-503	593
GL10S	-455	680
GL11E	-592	636
GL11S	-547	724
GL12E	-678	683
GL12S	-640	775
GL13E	-766	737
GL13S	-725	827
GL14E	-847	793
GL14S	-807	883
GL15E	-931	865
GL15S	-861	935
GL16E	-959	1007
GL16S	-870	961
GL17E	-929	1107
GL17S	-835	1072
GL18E	-911	1175
GL18S	-814	1187
GL19E	-903	1275
GL19S	-805	1290
GL1E	-529	99
GL1S	-547	3
GL20E	-899	1302
GL20S	-886	1401
GL21E	-988	1297
GL21S	-1001	1395
GL22E	-1083	1296
GL22S	-1100	1391
GL23E	-1175	1266
GL23S	-1194	1361
GL24E	-1251	1234
GL24S	1298	1321
GL25E	-1320	1195
GL25S	-1389	1262
GL26E	-1407	1117
GL26S GL27E	-1465	1196
	-1413	1079
GL27S	-1512 1207	1074
GL28E	-1397	995
GL28S GL2E	-1489 451	960
	-451 451	98
GL2S	-451 242	0
GL3E GL3S	-342 347	100
	-347 251	3
GL4E	-251 221	101
GL4S	-231	7

Appendix B: Blackwell Landfill Site-Coordinates of Survey Features

	Location of	Station at Site is
Station	East (feet)	North (feet)
GL5E	-148	113
GL5S	-133	14
GL6E	-201	374
GL6S	-155	461
GL7E	-245	472
GL7S	-184	549
GL8E	-310	523
GL8S	-273	615
GL9E	-414	553
GL9S	-362	641
SB3	-274	83
SV1	-1211	1088

D

D

GEOTECH LABORATORY RESULTS

D1 Grain Size Results

D2 Laboratory Permeability Results

DI GRAIN SIZE RESULTS

Project:

Blackwell Forest Preserve

Client:

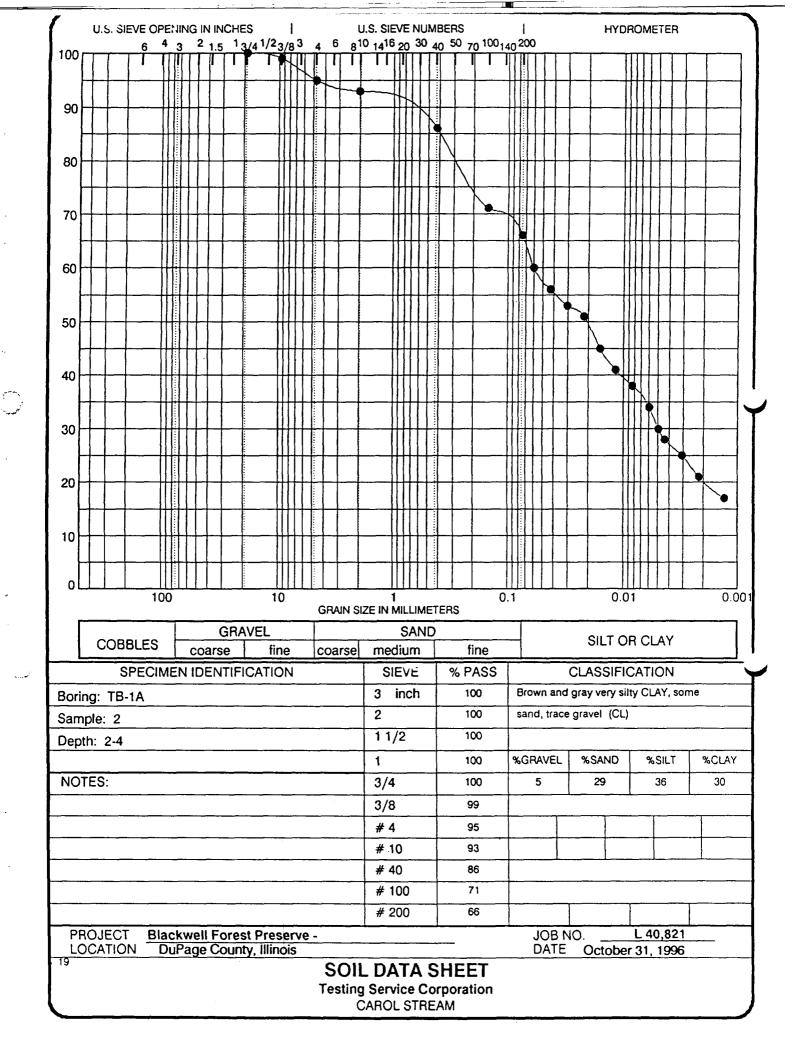
Montgomery Watson

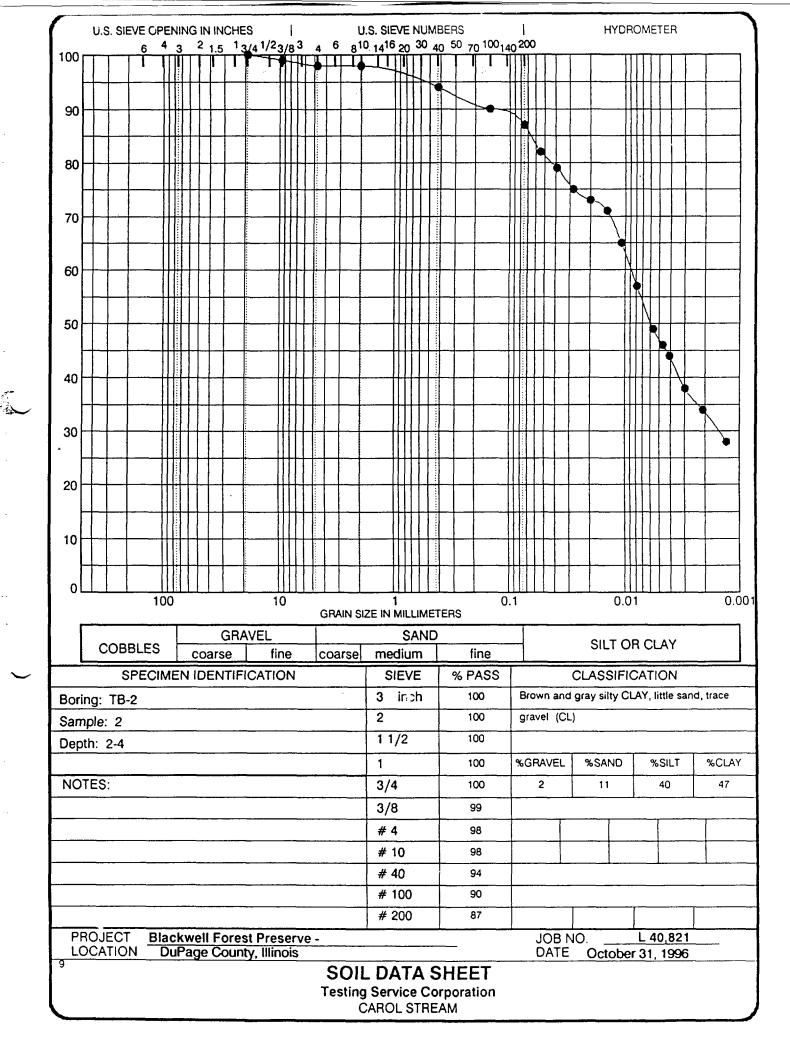
TSC Job No: 40821

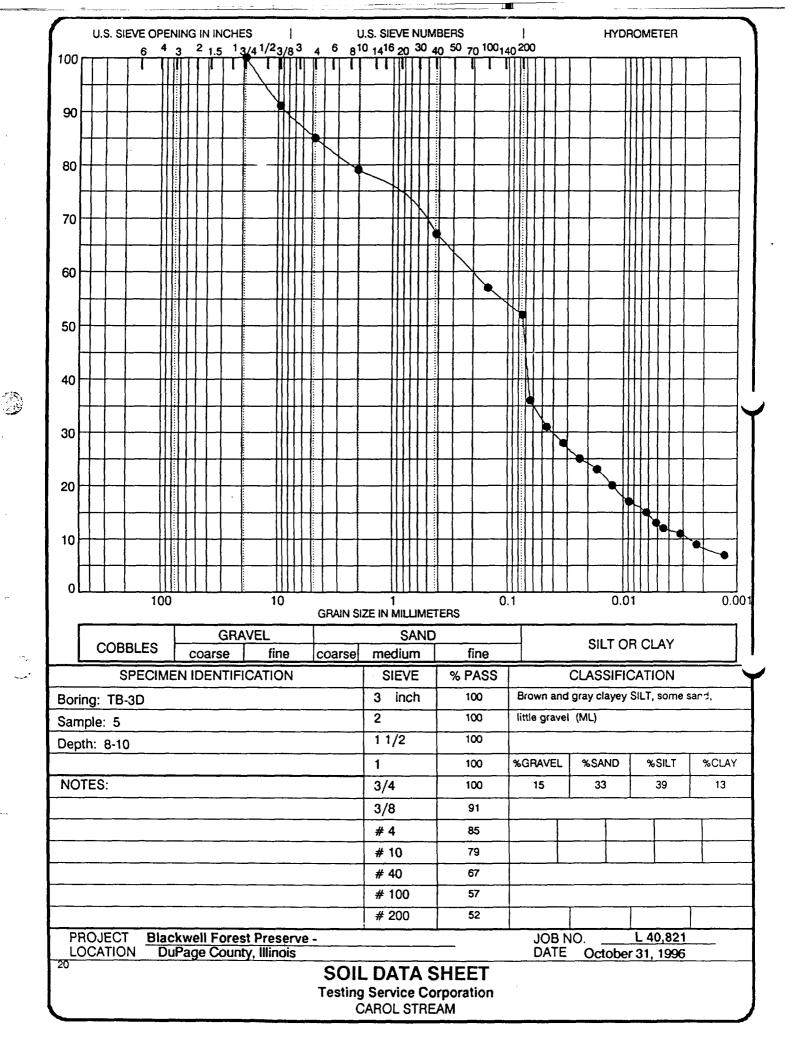
SUMMARY OF GRAIN SIZE ANALYSES

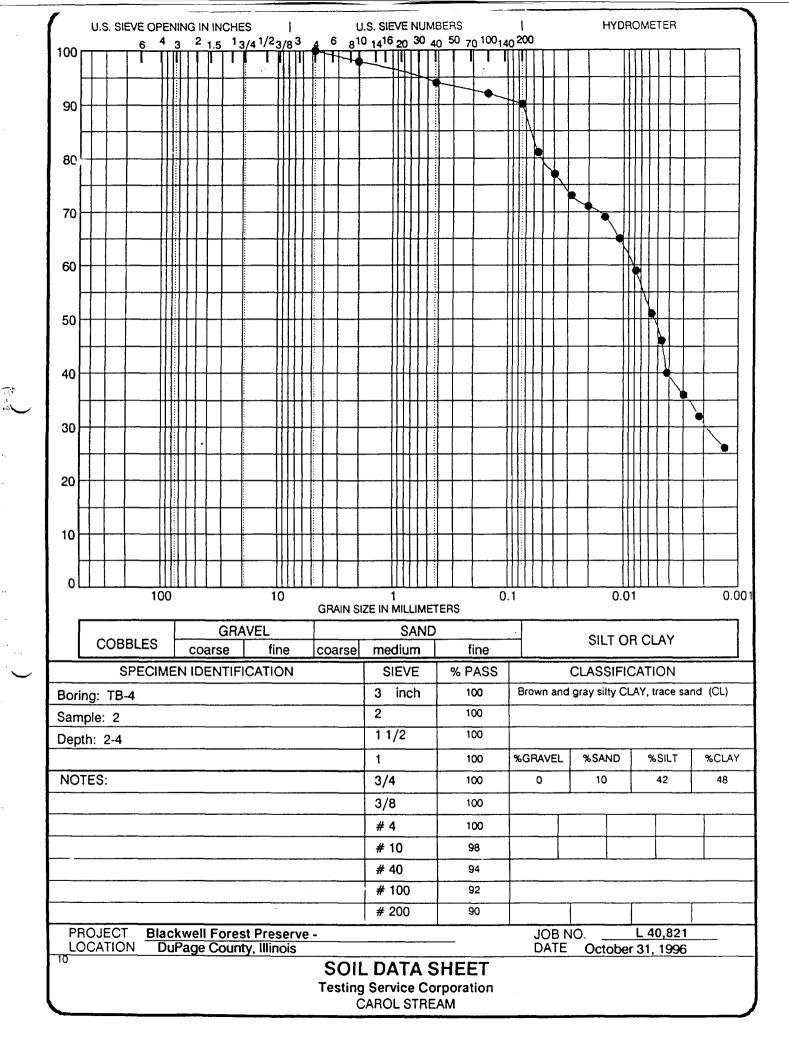
(See Attached Soil Data Sheets for Results)

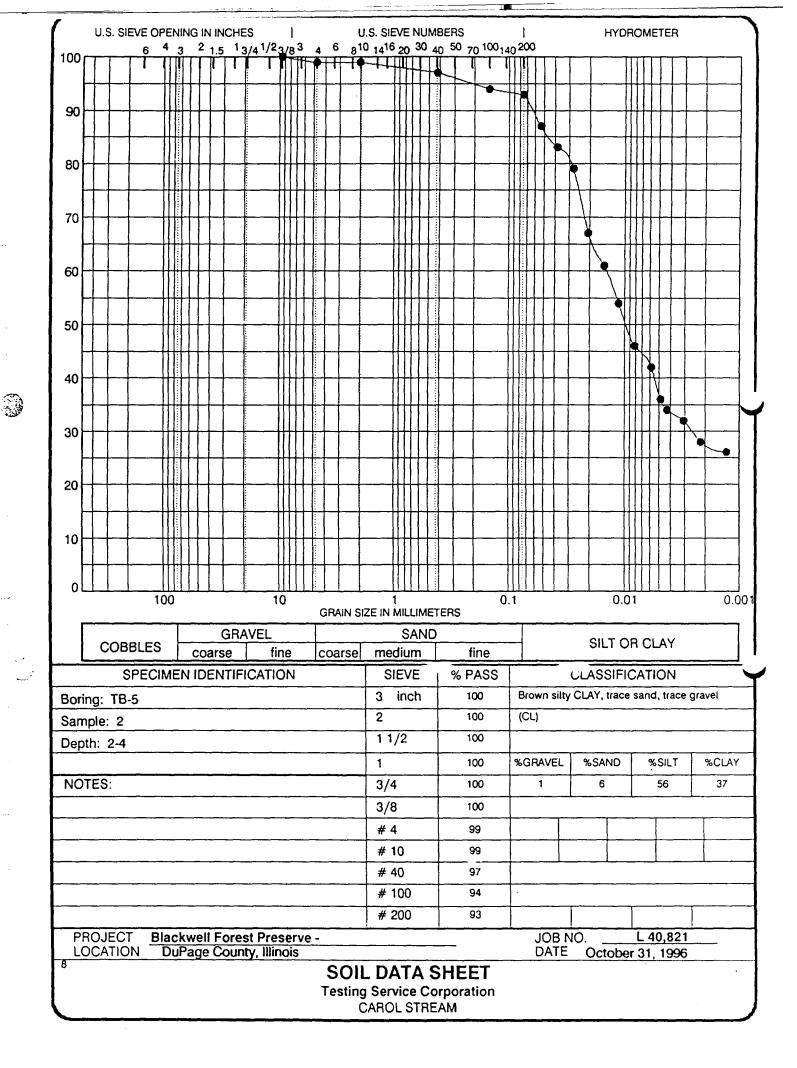
Date Obtained	Sample No.
10-7-96	r TB-9, S-2, 2' - 4'
10-7-96	TB-10, S-2, 2' - 4'
10-7-96	TB-11, S-3, 4' - 6'
10-7-96	7 TB-12, S-4, 6' - 8'
10-7-96	∞ TB-13, S-4, 6' - 8'
10-7-96	TB-14, S-7, 12' - 14'
10-7-96	TB-15, S-4, 6' - 8'
10-8-96	TB-16, S-2, 2' - 4'
10-9-96	TB-20, S-4, 6' - 8'
10-9-96	TB-19, S-8, 14' - 16'
10-9-96	TB-18, S-2, 2' - 4'
10-9-96	TB-17, S-2, 2' - 4'
10-9-96	TB-8, S-3, 4' - 6'
10-9-96	✓ TB-2, S-2, 2' - 4'
10-9-96	√ TB-4, S-2, 2' - 4'
10-9-96	· TB-7, S-2, 2' - 4'
10-9-96	TB-6, S-4, 6' - 8'
10-9-96	´ TB-5, S-2, 2' - 4'
10-10-96	✓ TB-1A, S-2, 2' - 4'
10-11-96	√ TB-3D, S-5, 8' - 10'

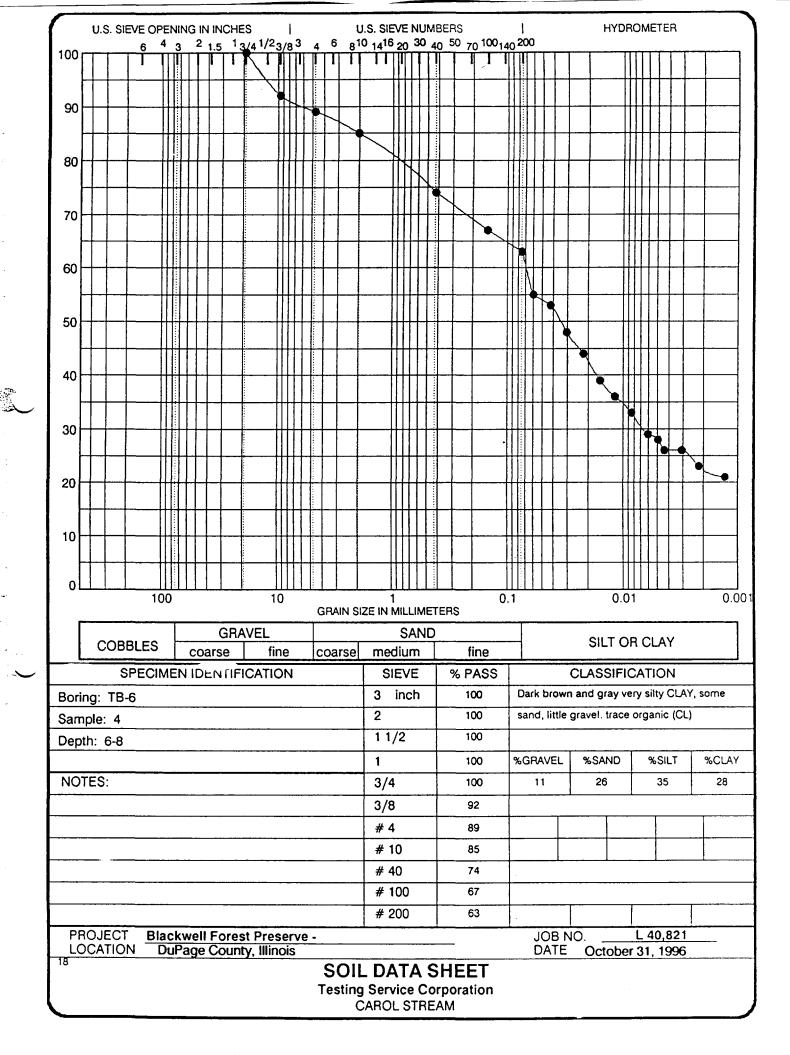


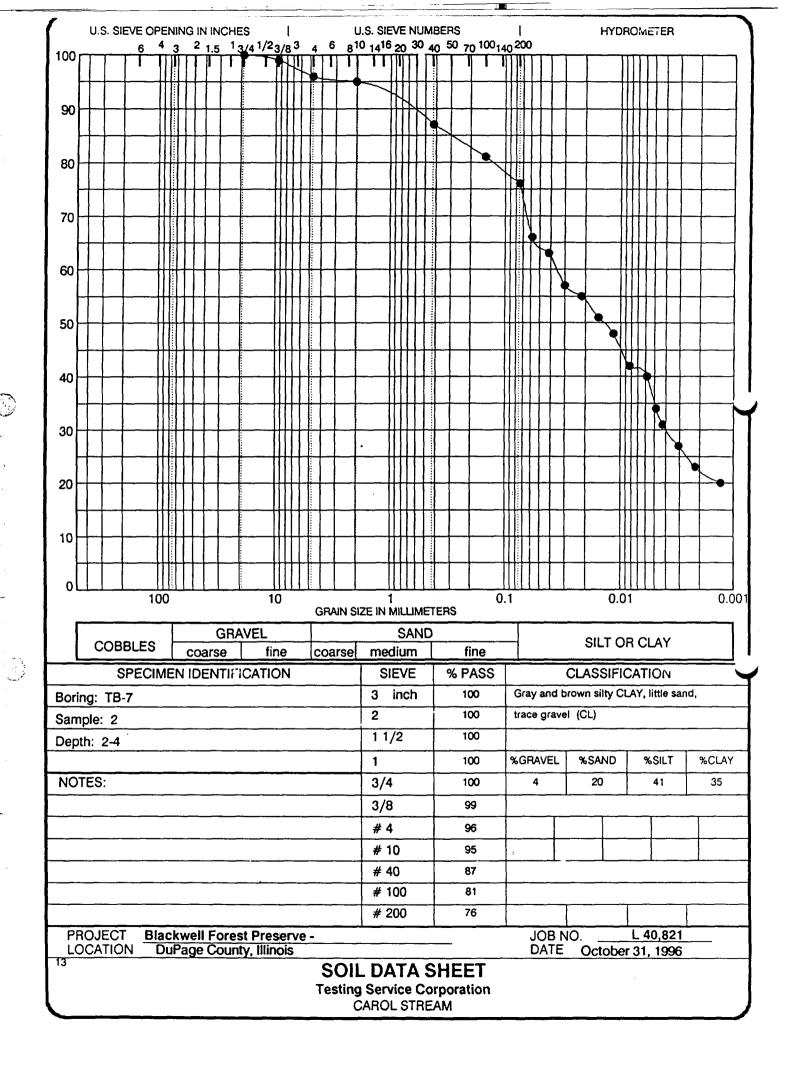


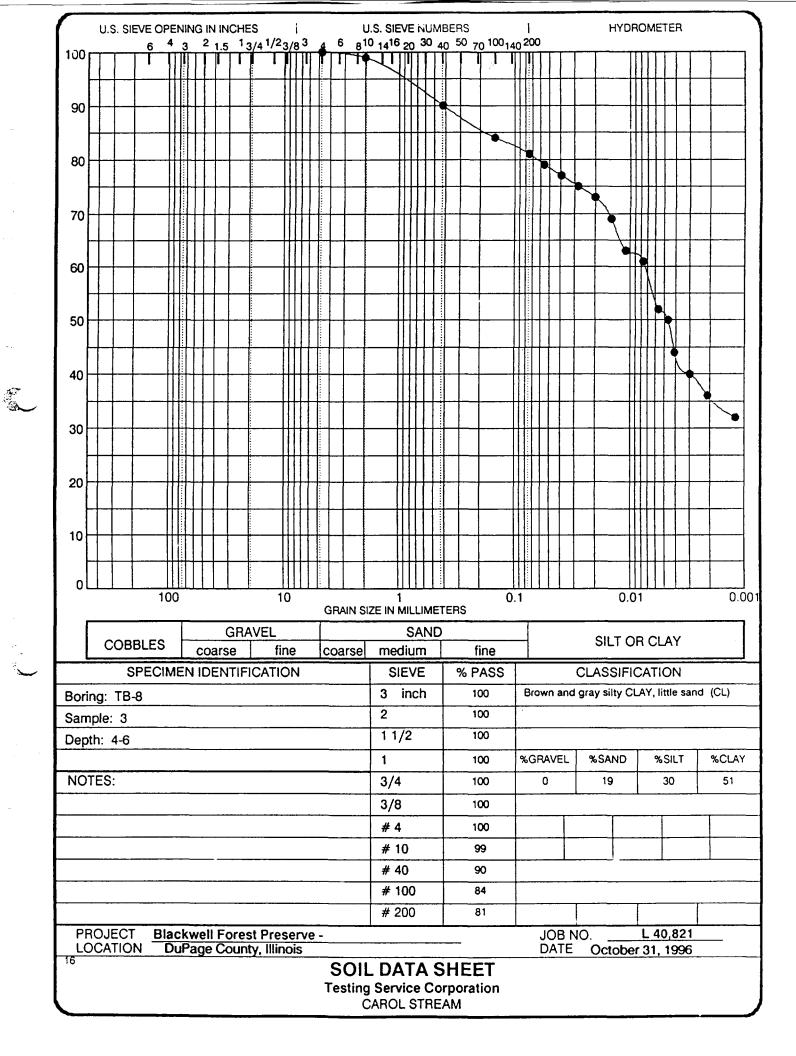


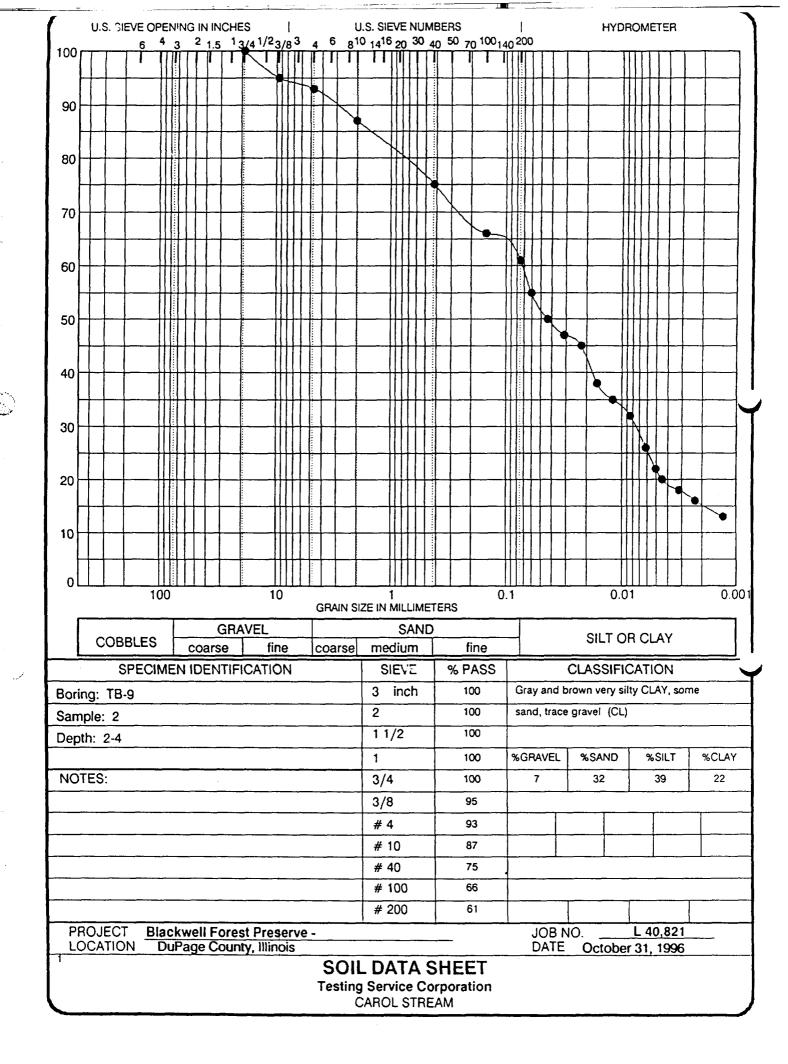


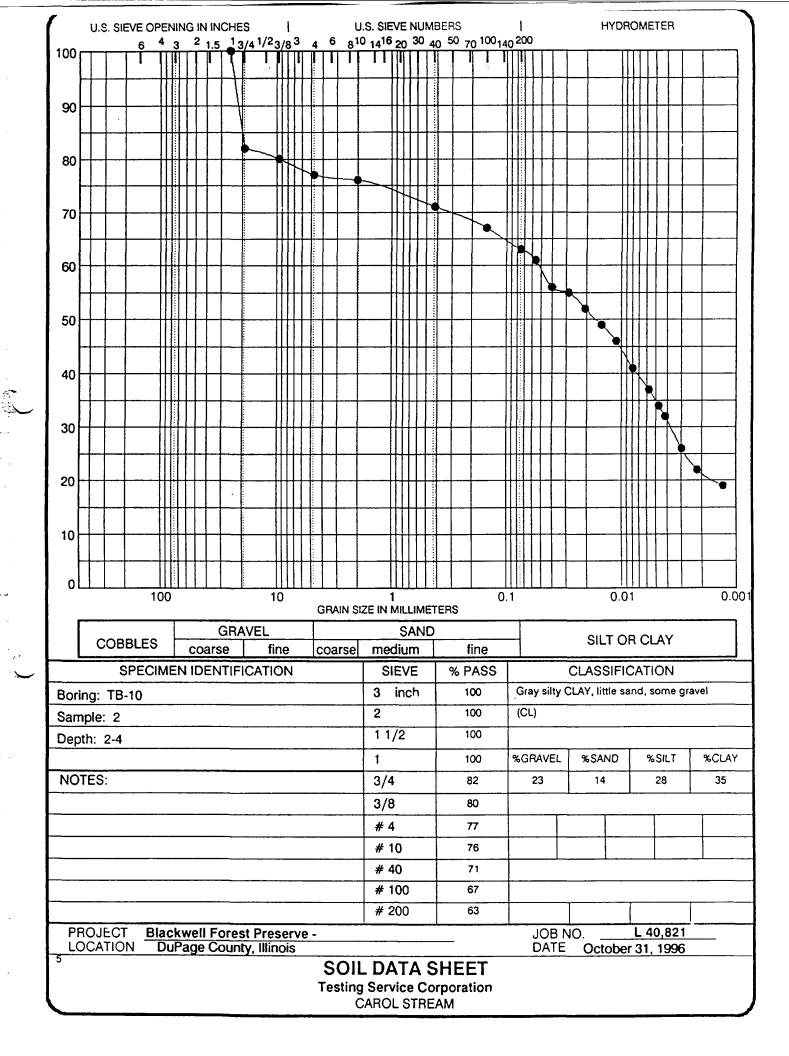


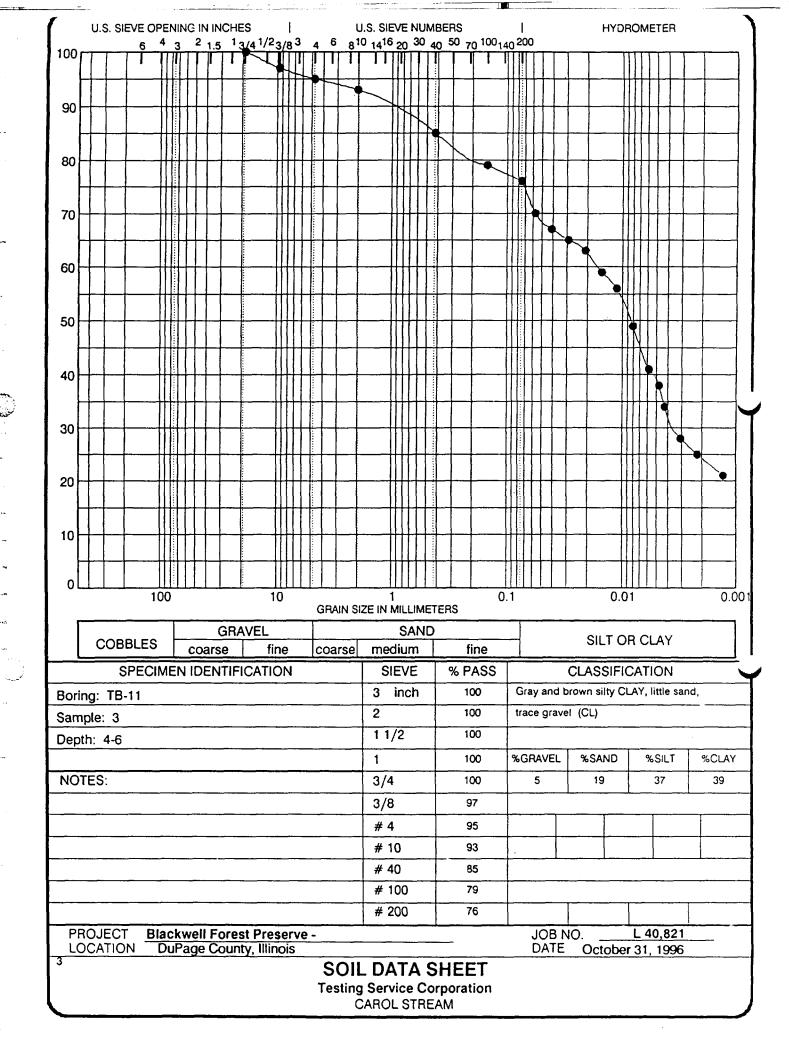


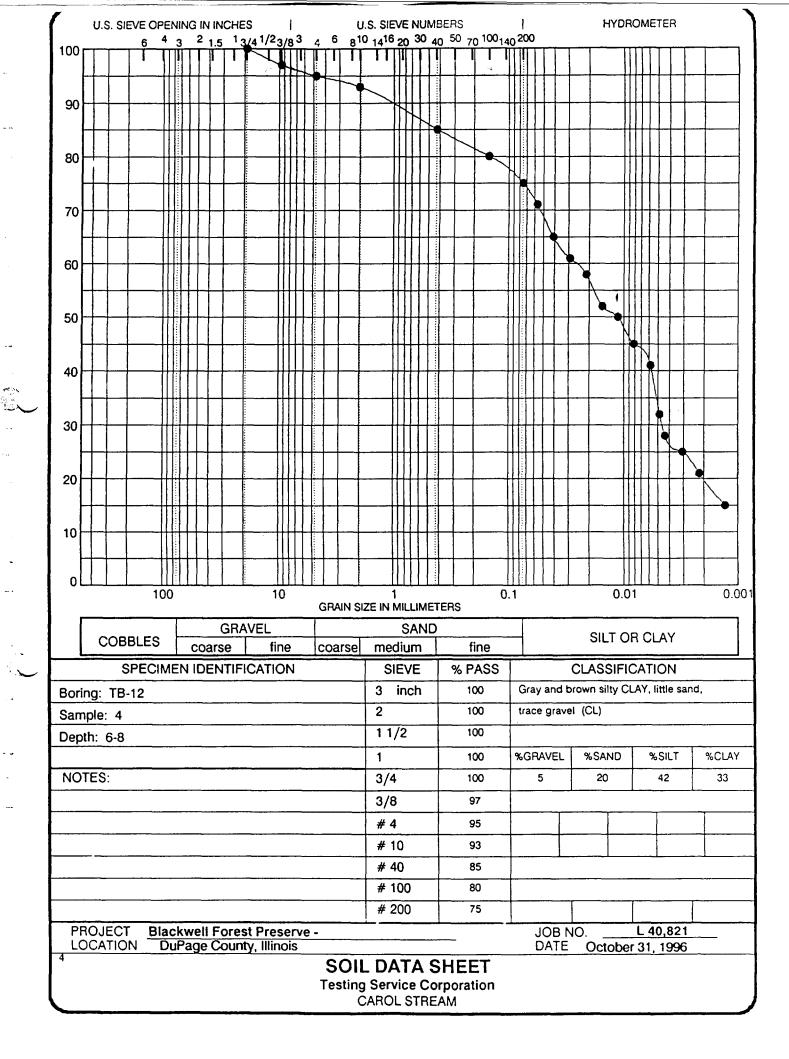


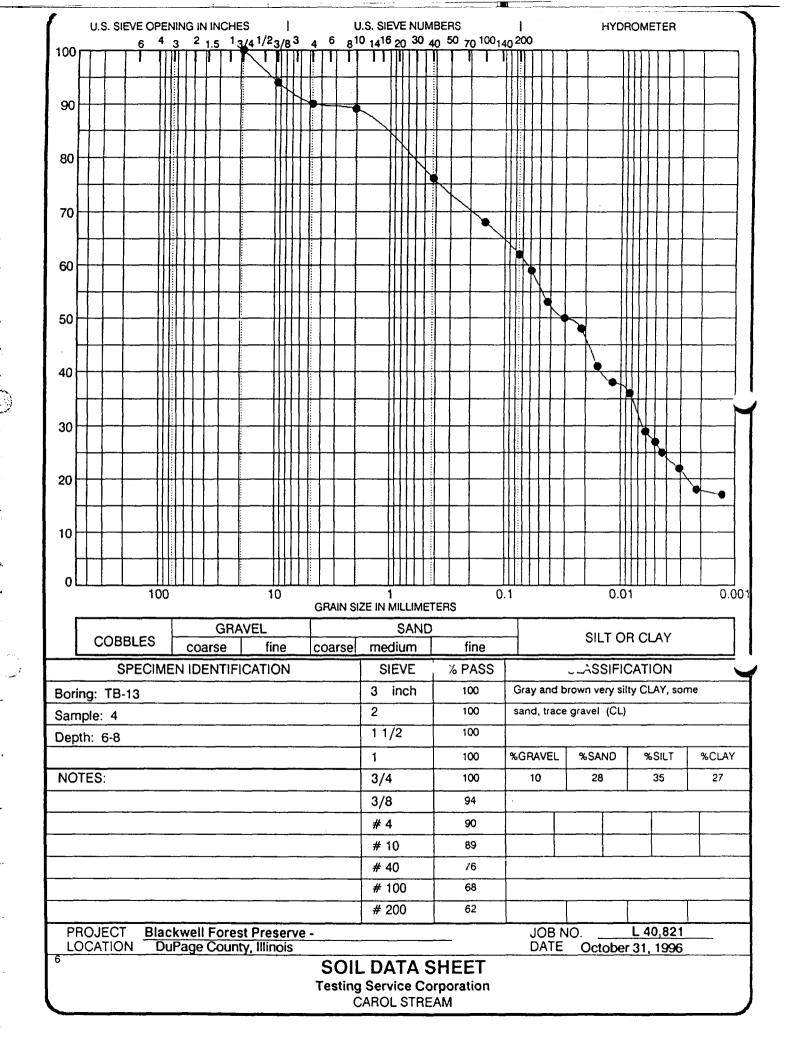


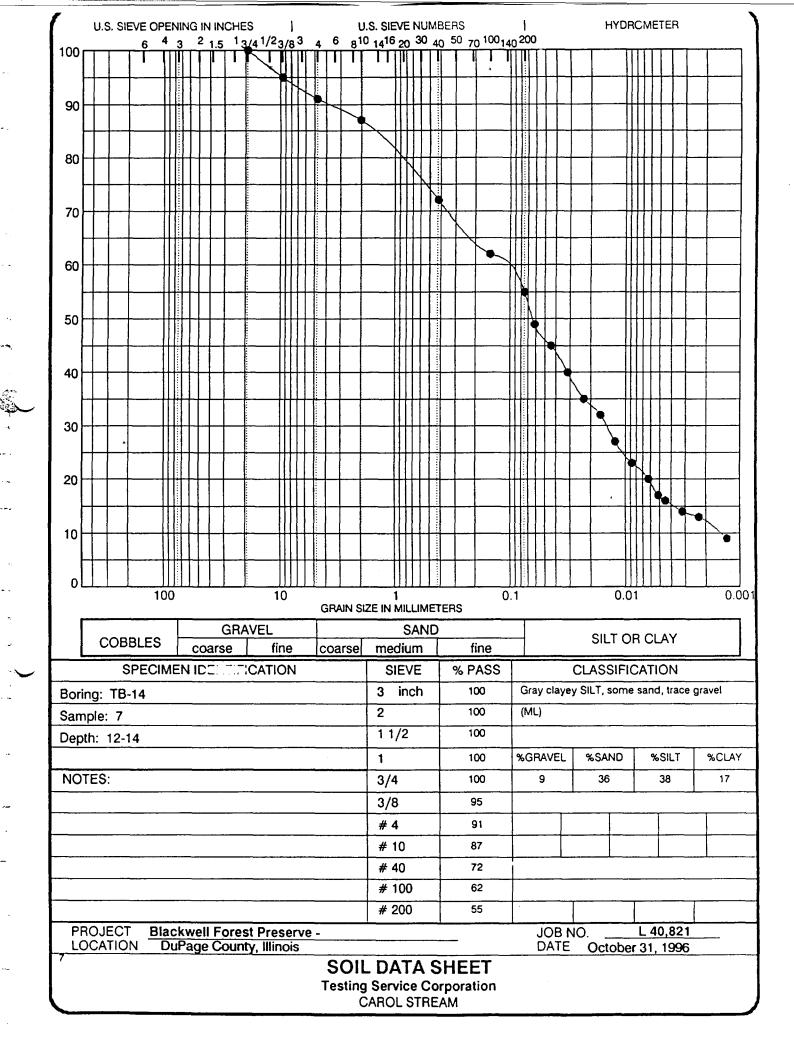


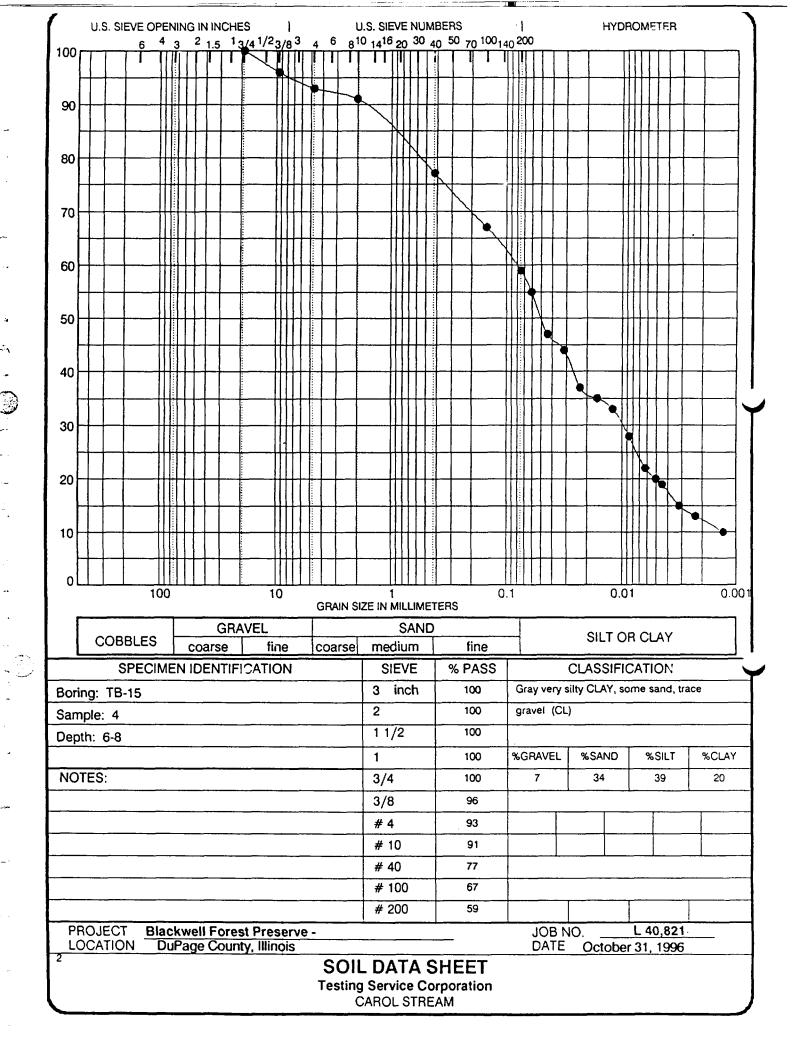


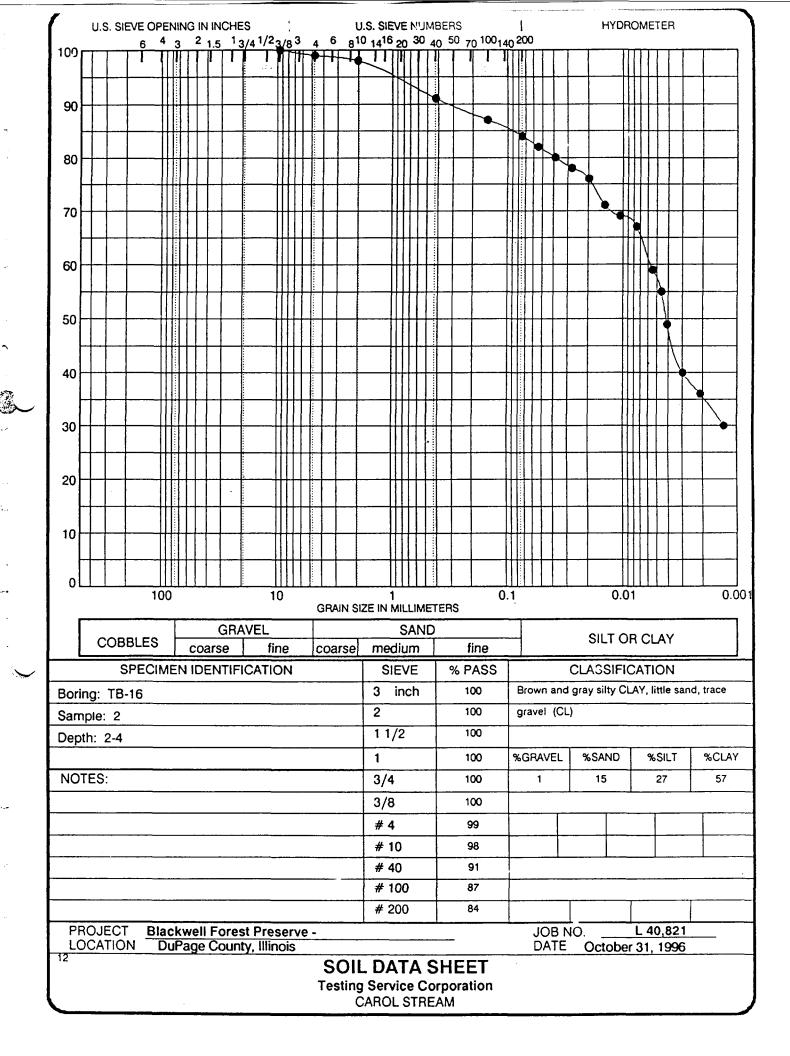


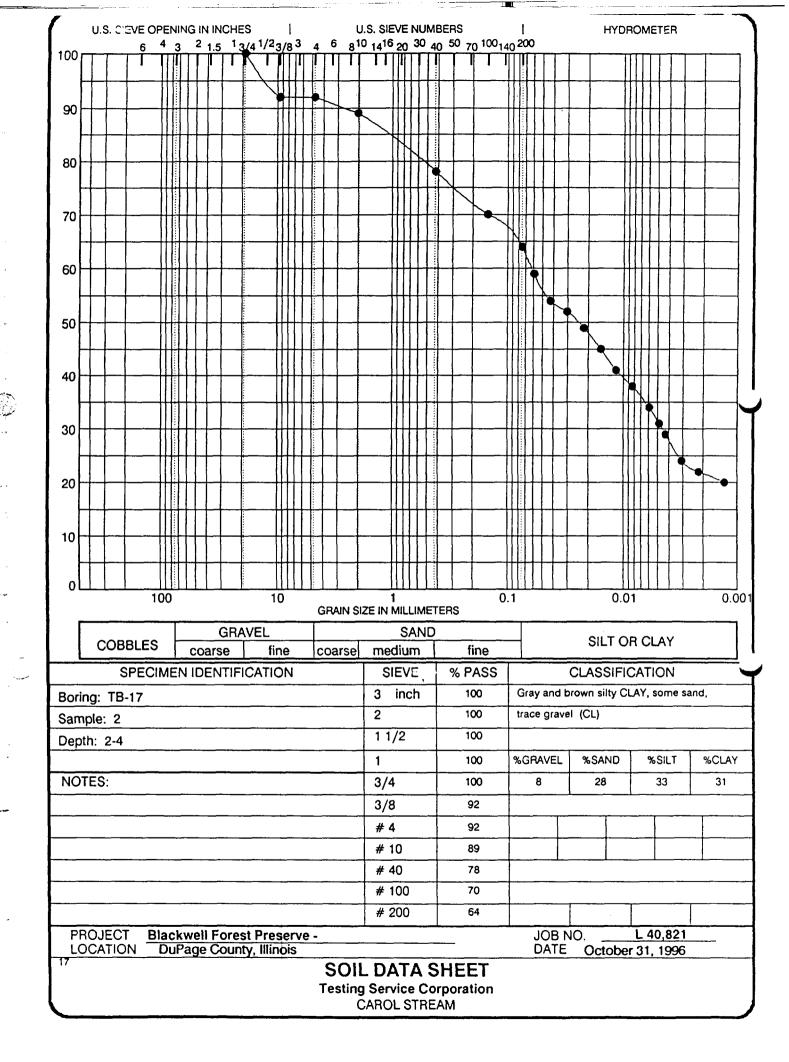


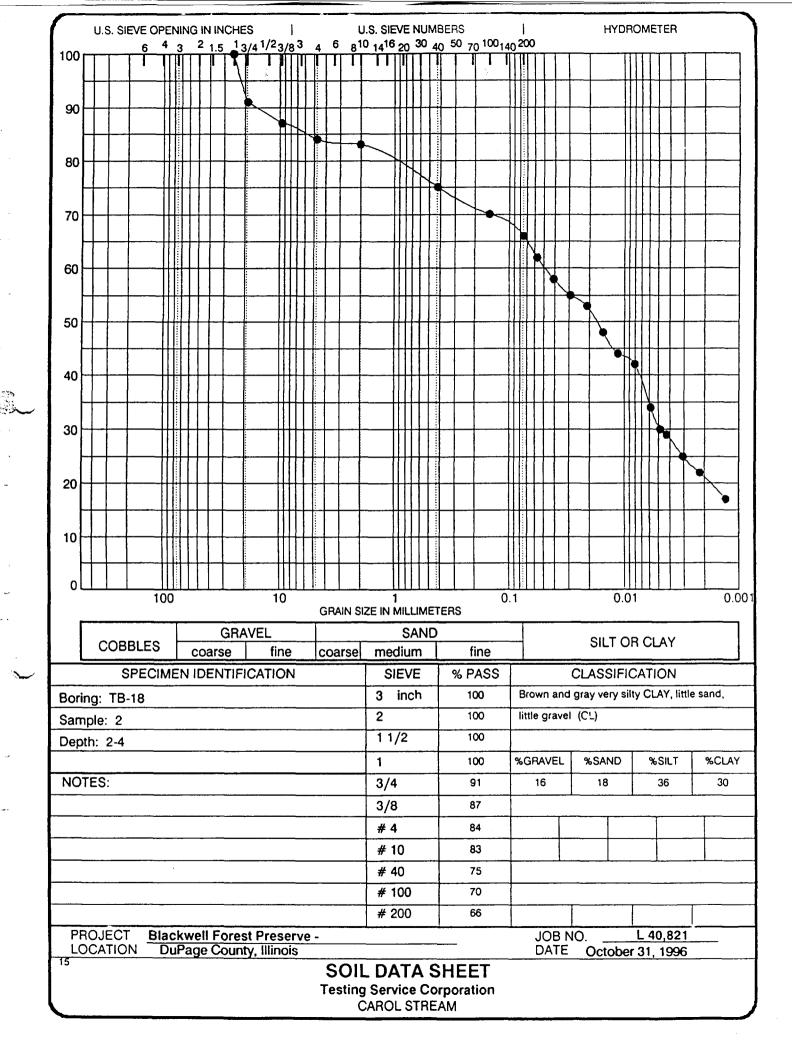


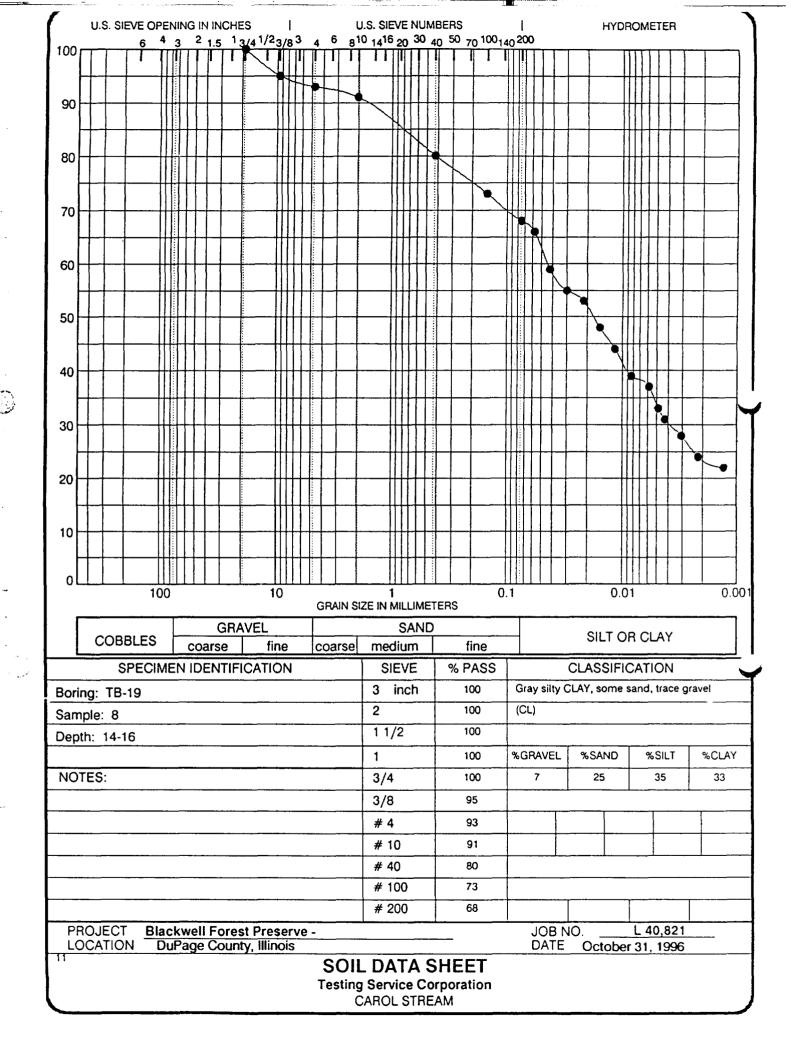


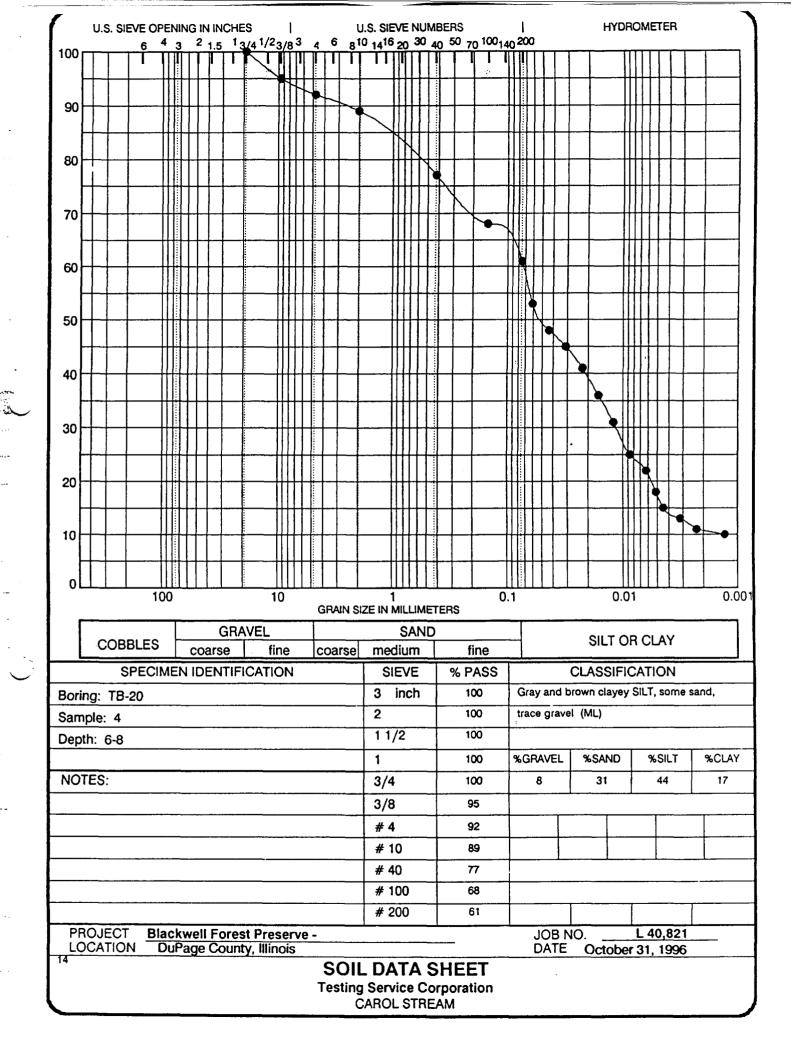












D2

LABORATORY PERMIBABILITY RESULTS

TESTING SERVICE CORPORATION TEST DATA SHEET TRIAXIAL PERMEABILITY TEST

JOB NO.: 40821 LOCATION: TB - 1

TB - 1A: 3'

DEPTH :

SAMPLE :

DATE: 10-14-96

SAMPLE DIMENSIONS		TEST PRESSUR	ES
			
HEIGHT (1	7.28 cm.	CELL :	34.0 p.s.i
DIAMETER:	7.23 cm	INFLOW:	32.5 p.s.i
AREA (A):	41.06 cm.^2	BACK :	29.5 p.s.i
VOLUME :	298.88 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT :	29.0
		EFF. STRES	3.0 p.s.i.

TI	PSED ME UTES(t)	INFLOW READING	TEST OUTFLOW READING (X)	DATA (X-Y)	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
	195.0 210.0 945.0 270.0 190.0 960.0 395.0	1.60 2.80 4.00 8.10 9.80 10.13 14.70 16.40	22.10 21.00 19.70 15.00 13.80 13.00 8.70 6.90	20.50 18.20 15.70 6.90 4.00 2.60 -6.00	231.46 229.16 226.66 217.86 214.96 213.56 204.96 201.46	5.42345 5.38385 5.37045 5.36392	5.94E-08 6.06E-08 4.86E-08 5.76E-08 3.99E-08 4.97E-08 5.06E-08

HEAD EQUIVALENT:
[(INFLOW P.-OUTFLOW P.)*70.32]
211.0

K=[(a*1)/(2A*t)]*ln(h1/h2)

K avg = 4.6E-08 cm/sec

JOB NO. : 40821 LOCATION : TB - 2D DATE: 10-24-96

DEPTH : 3'

SAMPLE :

SAMPLE	DIMENSIONS			TEST PR	ESSUR	ES
	HEIGHT (1	8.68	cm.	CELL	:	46.0 p.s.i
	DIAMETER:	7.22	cm	INFLOW	:	44.5 p.s.i
	AREA (A):	40.94	cm.^2	BACK	:	41.5 p.s.i
	VOLUME :	355.37	cm.^3			
PIPETTE	-AREA (a):	0.785	cm.	GRADIEN	T :	24.3
				EFF. ST	RES	3.0 n.s.i.

 ELAPSED TIME MINUTES(t)	INFLOW READING	OUTFLOW READING (X)	(X-Y)	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
	0.50	24.50	24.00	234.96	5.45942	
0.5	4.50	20.50	16.00	226.96	5.42477	9.61E-05
0.5	8.00	16.60	8.60	219.56	5.39163	9.19E-05
0.5	11.50	13.20	1.70	212.66	5.35969	8.86E-05
0.5	14.70	10.20	-4.50	206.46	5.33011	8.21E-05
0.5	18.20	6.80	-11.40	199.56	5.29611	9.43E-0
0.5	21.00	4.00	-17.00	193.96	5.26765	7.90E-05

HEAD EQUIVALENT:
[(INFLOW P.-OUTFLOW P.)*70.32]
211.0

K=[(a*1)/(2A*t)]*ln(h1/h2)

K avg = 8.9E-05 cm/sec

JOB NO.: 40821 LOCATION: TB - 4B

821 DATE: 10-24-96

DEPTH : 12'

SAMPLE :

SAMPLE DIMENSIONS		TEST PRESSUR	ES
			
HEIGHT (1	8.75 cm.	CELL :	42.0 p.s.i
DIAMETER:	7.23 cm	<pre>INFLOW :</pre>	40.5 p.s.i
AREA (A):	41.06 cm.^2	BACK:	37.5 p.s.i
VOLUME :	359.23 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT:	24.1
		EFF. STRES	3.0 p.s.i.

-----TEST DATA-----INFLOW OUTFLOW HEAD ELAPSED ln TIME READING READING **EQUIVALENT** K (X) (X-Y) (h) MINUTES (t) (CM/SEC) 0.80 24.00 23.20 234.16 5.45600 10.20 206.86 5.33204 1.08E-06 203.46 5.31547 9.24E-07 160.0 14.30 -4.10 8.50 25.0 16.00 -7.50 17.0 17.20 7.40 -9.80 201.16 5.30410 9.32E-07 18.0 18.40 6.20 -12.20 198.76 5.29210 9.30E-07 191.96 5.25729 8.82E-07 -19.00 55.0 21.80 2.80 25.0 23.50 1.00 -22.50 188.46 5.23889 1.03E-06 10.0 24.00 0.50 -23.50 187.46 5.23357 7.42E-07

HEAD EQUIVALENT:

[(INFLOW P.-OUTFLOW P.)*70.32] 211.0 K=[(a*1)/(2A*t)]*ln(h1/h2)

K avg = 8.1E-07 cm/sec

JOB NO.: 40821

DATE: 10-28-96

LOCATION: TB - 6B DEPTH : 8.5'

SAMPLE :

SAMPLE DIMENSIONS		TEST PRESSUR	ES
HEIGHT (1	7.89 cm.	CELL :	58.5 p.s.i
DIAMETER:	7.22 cm	INFLOW:	57.0 p.s.i
AREA (A):	40.94 cm.^2	BACK:	54.0 p.s.i
VOLUME :	323.03 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT:	26.8
	•		
		EFF. STRES	3.0 p.s.i.

		TEST	DATA			
ELAPSED TIME MINUTES(t)	INFLOW READING	OUTFLOW READING (X)	(X-Y)	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
	1.50	20.80	19.30	230.26	5.43921	
65.0	2.50	19.80	17.30	228.26	5.43049	1.69E-07
70.0	3.40	18.70	15.30	226.26	5.42168	1.58E-07
100.0	4.70	17.10	12.40	223.36	5.40878	1.63E-07
115.0	6.30	15.70	9.40	220.36	5.39526	1.48E-07
100.0	7.50	14.30	6.80	217.76	5.38339	1.50E-07
975.0	18.80	2.60	-16.20	194.76	5.27177	1.44E-07
110.0	19.90	1.50	-18.40	192.56	5.26041	1.30E-07

HEAD EQUIVALENT : [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)211.0

K avg = 1.5E-07 cm/sec

JOB NO. : 40841

LOCATION: TB - 8 DEPTH : 6.5'

SAMPLE :

DATE : 10-18-96

SAMPLE	DIMENSIONS			TEST PR	ESSUF	RES	
	HEIGHT (1	7.89	cm.	CELL	:	53.5	p.s.i
	DIAMETER:	7.19	cm	INFLOW	:		p.s.i
	AREA (A):	40.60	cm.^2	BACK	:	49.0	p.s.i
	VOLUME :	320.35	cm.^3				
PIPETTE	-AREA (a):	0.785	cm.	GRADIEN	T :	26.8	

EFF. STRES 3.0 p.s.i.

ELAPSED TIME MINUTES(t)	INFLOW READING	OUTFLOW READING (X)	DATA (X-Y)	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
275.0 4045.0 240.0 220.0 970.0 170.0 100.0 85.0	0.40 0.80 8.00 8.40 8.70 10.30 10.50 10.70	22.60 21.60 13.20 12.70 12.20 10.40 10.10 9.90 9.80	22.20 20.80 5.20 4.30 3.50 0.10 -0.40 -0.80 -1.10	233.16 231.76 216.16 215.26 214.46 211.06 210.56 210.16 209.86	5.37602 5.37185 5.36812 5.35214 5.34977 5.34787	2.78E-08 2.19E-08 2.21E-08 2.15E-08 2.09E-08 1.77E-08 2.42E-08 2.14E-08

HEAD EQUIVALENT : [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)211.0

K avg = 2.2E-08 cm/sec

JOB NO.: 40821 LOCATION:

TB - 12A

DEPTH : 18'

SAMPLE :

DATE : 10-21-96

	TEST PRESSURE	ES
7.96 cm.	CELL :	34.0 p.s.i
7.18 cm	INFLOW:	32.5 p.s.i
40.49 cm.^2	BACK:	29.5 p.s.i
322.29 cm.^3		
0.785 cm.	GRADIENT :	26.5
	7.18 cm 40.49 cm.^2 322.29 cm.^3	7.96 cm. CELL: 7.18 cm INFLOW: 40.49 cm.^2 BACK: 322.29 cm.^3

EFF. STRES 3.0 p.s.i.

ELAPSED TIME MINUTES(t)	INFLOW READING	TEST OUTFLOW READING (X)	DATA	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
195.0 220.0 955.0 185.0 100.0 85.0 95.0	1.10 2.20 3.40 8.20 9.10 9.50 10.00	22.90 21.60 20.20 14.80 13.80 13.30 12.90 12.40	21.80 19.40 16.80 6.60 4.70 3.80 2.90 2.00	232.76 230.36 227.76 217.56 215.66 214.76 213.86 212.96	5.42829 5.38247 5.37370 5.36952 5.36532	6.84E-08 6.64E-08 6.17E-08 6.10E-08 5.38E-08 6.35E-08 5.71E-08

HEAD EQUIVALENT : [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)

K avg = 6.2E-08 cm/sec

JOB NO.: 40821

LOCATION: TB - 13

DEPTH: 8'

SAMPLE :

DATE: 10-9-96

EFF. STRES 3.0 p.s.i.

SAMPLE DIMENSIONS		TEST PRESSUR	ES
HEIGHT (1	9.14 cm.	CELL :	34.0 p.s.i
DIAMETER:	7.19 cm	INFLOW:	
AREA (A):	40.60 cm.^2	BACK :	29.5 p.s.i
VOLUME :	371.10 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT:	23.1

-----TEST DATA----HEAD INFLOW OUTFLOW ELAPSED ln ADING EQ (X) (X-Y) **EQUIVALENT** TIME READING READING K MINUTES(t) (h) (CM/SEC) 1.30 22.00 20.70 231.66 5.44527
3.30 20.00 16.70 227.66 5.42785 2.33E-07
4.50 18.70 14.20 225.16 5.41681 2.17E-07
5.80 17.20 11.40 222.36 5.40430 2.17E-07
6.80 16.20 9.40 220.36 5.39526 2.05E-07
7.80 15.10 7.30 218.26 5.38569 2.17E-07
8.90 14.10 5.20 216.16 5.37602 2.03E-07 110.0 75.0 85.0 65.0 65.0 70.0 950.0 19.30 3.00 -16.30 194.66 5.27125 1.62E-07 -17.90 2.00 193.06 5.26300 1.10E-07 110.0 19.90

HEAD EQUIVALENT:
[(INFLOW P.-OUTFLOW P.)*70.32]
211.0

K=[(a*1)/(2A*t)]*ln(h1/h2)

K avg = 2.0E-07 cm/sec

JOB NO.: 40821

LOCATION : TB - 13C

> DEPTH : 5*'*

SAMPLE :

DATE : 10-17-96

SAMPLE	DIMENSIONS			TEST PR	ESSUR	ES
	HEIGHT (1	3.84	cm.	CELL	:	31.5 p.s.i
	DIAMETER:	3.44	cm	INFLOW	:	31.0 p.s.i
	AREA (A):	9.29	cm.^2	BACK	:	30.0 p.s.i
	VOLUME :	35.69	cm.^3			_
PIPETTE	-AREA (a):	0.785	cm.	GRADIEN	т:	18.3
				EFF. ST	RES	1.0 p.s.i.

ELAPSED TIME MINUTES(t)	INFLOW READING	OUTFLOW READING (X)	DATA	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
1.0 1.0 1.0 1.0 1.0 1.0	1.20 1.80 2.30 2.80 3.30 3.80 4.30 4.70	23.80 23.20 22.70 22.20 21.70 21.20 20.70 20.30	22.60 21.40 20.40 19.40 18.40 17.40 16.40	92.92 91.72 90.72 89.72 88.72 87.72 86.72 85.92	4.50778 4.49669 4.48549 4.47115 4.46268	3.51E-05 2.96E-05 3.00E-05 3.03E-05 3.06E-05 3.10E-05 2.50E-05
1.0	5.20	19.80	14.60	84.92		3.16E-05

HEAD EQUIVALENT : [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)70.3

K a.g = 3.0E-05 cm/sec

JOB NO.: 40821

TB - 15 LOCATION:

DEPTH : 7.5

SAMPLE :

DATE : 10-22-96

SAMPLE DIMENSIONS		TEST PRESSURI	ES
*			
HEIGHT (1	7.89 cm.	CELL :	68.0 p.s.i
DIAMETER:	7.18 cm	INFLOW:	66.5 p.s.i
AREA (A):	40.49 cm.^2	BACK :	63.5 p.s.i
VOLUME :	319.46 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT:	26.8

EFF. STRES 3.0 p.s.i.

	ELAPSED TIME MINUTES(t)	INFLOW READING	OUTFLOW READING (X)	DATA	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
 ·	2725.0 135.0 100.0 215.0 975.0 110.0	0.60 6.70 6.90 7.10 7.40 9	23.20 16.00 15.70 15.50 15.00 12.90 12.70	22.60 9.30 8.80 8.40 7.60 3.50 3.10 2.50	233.56 220.26 219.76 219.36 218.56 214.46 214.06 213.46	5.39254 5.39071 5.38706 5.36812 5.36626	2.74E-08 2.15E-08 2.32E-08 2.17E-08 2.48E-08 2.16E-08 2.56E-08

HEAD EQUIVALENT: [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)211.0

K avg = 2.4E-08 cm/sec

JOB NO.: 40821

LOCATION: TB - 15A

8′ DEPTH :

SAMPLE :

DATE: 10-22-96

EFF. STRES 3.0 p.s.i.

SAMPLE DIMENSIONS		TEST PRESSURI	ES
			
HEIGHT (1	8.00 cm.	CELL :	40.0 p.s.i
DIAMETER:	7.15 cm	INFLOW:	-
AREA (A):	40.15 cm.^2	BACK:	35.5 p.s.i
VOLUME :	321.21 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT:	26.4

-----TEST DATA-----INFLOW HEAD ln OUTFLOW ELAPSED READING READING EQUIVALENT TIME K MINUTES(t) (CM/SEC) (X) (X-Y) (h) 1.10 22.00 20.90 231.86 5.44613
3.20 19.80 16.60 227.56 5.42741 1.95E-07
5.00 18.10 13.10 224.06 5.41191 2.02E-07
5.20 17.90 12.70 223.66 5.41013 1.16E-07
5.90 17.20 11.30 222.26 5.40385 2.05E-07
6.30 16.80 10.50 221.46 5.40024 1.88E-07 125.0 100.0 20.0 40.0 7.60 15.30 8.30 14 77 25.0 15.30 7.70 218.66 5.38752 1.75E-07 14.70 6.40 217.36 5.38155 1.73E-07 2.80 -17.30 193.66 5.26610 1.60E-07 95.0 45.0 940.0 20.10

HEAD EQUIVALENT : [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)

211.0

K avg = 1.8E-07 cm/sec

JOB NO.: 40821

LOCATION: TB - 18

DEPTH : 4'

SAMPLE :

DATE: 10-14-96

SAMPLE DIMENS	SIONS		TEST PRI	ESSURES	3
					-
HEIGH	IT (l 3.89	cm.	CELL	:	31.0 p.s.i
DIAME	TER: 3.49	cm	INFLOW	:	30.5 p.s.i
AREA	(A): 9.57	cm.^2	BACK	:	29.5 p.s.i
VOLUM	IE: 37.21	cm.^3			
PIPETTE -AREA	(a): 0.785	cm.	GRADIENT	r :	18.1
			EFF. STF	RES	1.0 p.s.i.

ELAPSED TIME MINUTES(t)	INFLOW READING	TEST OUTFLOW READING (X)	DATA	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
	12.90	6.60	-6.30	64.02	4.15920	
5.0	13.00	5.90	-7.10	63.22	4.14662	6.69E-06
5.0	13.10	5.30	-7.80	62.52	4.13549	5.92E-06
5.0	13.30	4.80	-8.50	61.82	4.12423	5.99E-06
5.0	13.50	4.10	-9.40	60.92	4.10956	7.80E-06
5.0	13.70	3.60	-10.10	60.22	4.09800	6.15E-06
	TIME MINUTES(t) 5.0 5.0 5.0 5.0	TIME READING MINUTES(t) 12.90 5.0 13.00 5.0 13.10 5.0 13.30 5.0 13.50	ELAPSED INFLOW OUTFLOW TIME READING READING MINUTES(t) (X) 12.90 6.60 5.0 13.00 5.90 5.0 13.10 5.30 5.0 13.30 4.80 5.0 13.50 4.10	ELAPSED INFLOW OUTFLOW READING MINUTES(t) (X) (X-Y) 12.90 6.60 -6.30 5.0 13.00 5.90 -7.10 5.0 13.10 5.30 -7.80 5.0 13.30 4.80 -8.50 5.0 13.50 4.10 -9.40	ELAPSED INFLOW OUTFLOW READING READING (X) (X-Y) (h) 12.90 6.60 -6.30 64.02 5.0 13.00 5.90 -7.10 63.22 5.0 13.10 5.30 -7.80 62.52 5.0 13.30 4.80 -8.50 61.82 5.0 13.50 4.10 -9.40 60.92	ELAPSED INFLOW OUTFLOW READING READING (X) (X-Y) (h) 12.90 6.60 -6.30 64.02 4.15920 5.0 13.00 5.90 -7.10 63.22 4.14662 5.0 13.10 5.30 -7.80 62.52 4.13549 5.0 13.30 4.80 -8.50 61.82 4.12423 5.0 13.50 4.10 -9.40 60.92 4.10956

HEAD EQUIVALENT:
[(INFLOW P.-OUTFLOW P.)*70.32]
70.3

K=[(a*1)/(2A*t)]*ln(h1/h2)

K avg = 6.5E-06 cm/sec

JOB NO.: 40821

LOCATION: TB - 18B

DEPTH: 7'

SAMPLE :

DATE : 10-28-96

SAMPLE DIMENSIONS		TEST PRESSURI	ES
			
HEIGHT (1	7.82 cm.	CELL :	66.0 p.s.i
DIAMETER:	7.16 cm	INFLOW:	64.5 p.s.i
AREA (A):	40.26 cm.^2	BACK :	61.5 p.s.i
VOLUME :	314.86 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT:	27.0
		EFF. STRES	3.0 p.s.i.

ELAPSED TIME MINUTES(t)	INFLOW READING	TEST OUTFLOW READING (X)	(X-Y)	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
135.0 100.0 215.0 975.0 110.0 65.0 75.0	0.50 1.20 1.50 2.20 6.10 6.50 6.70 7.00	22.00 21.30 20.90 19.90 15.90 15.50 15.20 14.90	21.50 20.10 19.40 17.70 9.80 9.00 8.50 7.90	232.46 231.06 230.36 228.66 220.76 219.96 219.46 218.86	5.43964 5.43224 5.39708 5.39345 5.39117	5.69E-08 3.85E-08 4.38E-08 4.58E-08 4.19E-08 4.45E-08 4.64E-08

HEAD EQUIVALENT : [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)211.0

K avg = 4.0E-08 cm/sec

JOB NO.: 40821

TB - 20D LOCATION:

DEPTH : 8'

SAMPLE :

DATE : 10-17-96

SAMPLE DIMENSIONS		TEST PRESSUR	ES
HEIGHT (1	7.62 cm.	CELL :	42.0 p.s.i
DIAMETER:	7.26 cm	<pre>INFLOW :</pre>	40.5 p.s.i
AREA (A):	41.40 cm.^2	BACK:	37.5 p.s.i
VOLUME :	315.44 cm.^3		
PIPETTE -AREA (a):	0.785 cm.	GRADIENT:	27.7
		EFF. STRES	3.0 p.s.i.

	LAPSED TIME INUTES(t)	INFLOW READING	OUTFLOW READING (X)	DATA	HEAD EQUIVALENT (h)	ln	K (CM/SEC)
•	5.0 30.0 35.0 50.0 100.0 20.0 40.0 25.0	2.00 2.30 3.30 4.60 6.20 9.70 10.40 11.70 12.50	22.00 21.80 20.80 19.60 17.90 14.50 13.80 12.60 11.70	20.00 19.50 17.50 15.00 11.70 4.80 3.40 0.90 -0.80	230.96 230.46 228.46 225.96 222.66 215.76 214.36 211.86 210.16	5.43136 5.42036 5.40565 5.37417	

HEAD EQUIVALENT : [(INFLOW P.-OUTFLOW P.)*70.32] K=[(a*1)/(2A*t)]*ln(h1/h2)211.0

K avg = 3.9E-07 cm/sec

	MONTGOMERY	WATSO
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CHAIN OF CUSTODY RECORD

	· · · · · · · · · · · · · · · · · · ·	the property of the second of the second	10,24	177 - 471
	. *		SPECIAL INSTRUCTIONS:	TURNAROUND
	\. '		PECFA	2 WEEKS (standard
	MONTGOMERY WATSON		WILUST □ACT 307	☐1 WEEK ☐3 DAYS
W		CHAIN OF CUSTODY RECORD	REPORT DRY WT	1 DAY

PROJECT NAME: BLACKWELL CITY: DUFAGE COUNTY SAMPLER(S):) //	PROJECT #: 3930.0041 STATE: F),	CONTAINERS	Grand C.	2 ² /	Or Col				/- /			
Julu.17			52	12	/ /י	/ /					LAB	USE ONLY
COLLECTION COLLECTION COMP	SAMPLE ID	S S		(F)	/_			/ /	/	REMARKS	MATRIX	LAB NO.
10.7.46	BW-SSTB09 - 4'	i	8								T	
	BW-SS TB10 - 4'		1XX			-						
	BW-SSTB11-61		X	5								
	BW-55-B12-8'		X			-		一				
	BW-SSTB13-8'	- - -	Ø			\top						
	BW-SS TB14-14'	╌╢╌┸╌	Ø				 	一十				
	BW-SSTB15-811	╢┼	X	+		+	 		-			
			ציו				╁─┤			<u></u>		
	BW-STTB10-4/2	-	_	A		-	├					
	BW-STTB12-8		<u> </u>	$ \infty $								
VIX	BW-STTB13-8			\otimes								
	BU-STTB15-7/2		1	X								
			0							PROJ. MGR.:	E VAST	
TSC Dr.	TAMPER EVIDENT SE	AL INTAC	:1?	YES	NC	·—	NOT PI	RESEN	lΤ	/ FEI	= VAST	
Diol 0	SAMPRS SEALNO	ONLICES		VEC	NC				— —	/		
AT	TAMPER EVIDENT SE TAMPER EVIDENT SE SEAL NO Their LAB (IN-HOUSAMBLES RECEIVED	ON ICE?		_153	NC	, IEMI		`	C			

	SIGNATURE DATE	TIME	SIGNATURE	DATE	TIME
RELINQUISHED BY:	7/5 /10/7/9	1615	RECEIVED BY: Robert Brown	10/7/96	1615
RELINQUISHED BY			RECEIVED BY: Jarry Jo church	10/8/96	8100
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED FOR LABORATORY BY:		

C-O-C No. 013778

NAME OF COURIER: AIRBILL NUMBER:

PROJECT NAME: BLACKWE CITY Dy PAGE SAMPLERIS):	OUNTY	PROJECT #: 3920.004		NO. OF CONTAINERS	Howa Co.	THE STATE OF THE S				OTHER:	<u> </u>	
1919-1	Th			OF CO	Ch Ma			' / /	/ /		LAB	USE ONLY
COLLECTION COLLECTION DATE TIME		SAMPLE ID		Ŏ.	Ko G	ÿ / ,	/ /	/ /		REMARKS	MATRIX	LÄB
10-8.96	X BW-557	B16-4	X	1	Ø	· [
104.96	X BW-557	B20-81	X		Ø							
1		819-16	×	1	Ø							
	BW-SS	TB18-4',	×	1	8							
	BW-SST	817-41	*	1	\otimes							
	BW-557	1808-6	χ	1			_					
	BW-ST	TB20-7	<i>X</i>	L	\mathcal{X}							
		TB18-4"	\times	1	\bigotimes				<u>.</u>			
	BW-S-	TTB08-6/2	X	2	\bigotimes				Stelly	TUBE AND SAJ SAMPLE HER OF TWO:		
V		TB02-4	Х	1	_&				we ge	her of two.		
10-9-96	BW-ST	TB02-3%	, X,		\prec							

RECEIVED BY:

RECEIVED FOR LABORATORY BY

C-O-C No. 013777

RELINQUISHED BY:

RELINQUISHED BY

AME OF COURIER: _	
IDDILL NUMBER	

									INST	RUCTIONS	š :	7 5 1 11 1	/OOND
MONTGOMERY WATSON	CHAIN OF	CUS	то	DY F	REC	ORD	ı		PECFA WILUS ACT 30 REPOR	ST .	į	☐2 WEEK ☐1 WEEK ☐3 DAYS ☐1 DAY	S (standard)
									OTHER	t:	ľ		
PROJECT NAME: BLACKWELL LANDS! CITY DIPAGE COUNTY SAMPLERS)	PROJECT #: 3920.004/	CONTAINED	January 1	The Contraction of the Contracti	x / / / / / / / / / / / / / / / / / / /								
2497		\		1. 1	/ /	//	/ /					LAB USE	ONLY
COLLECTION CHART DATE TIME COMP	SAMPLE ID	Ş	፭ ∜	62/PA		/ /		/ /	/ REMARI	s l	MATRI	ıx	LAB NO.
10-9-96 X BW	-SSTB04- 4,	X		₩.									27.2 110.
	1-ST1804 - 42	X	X]							-		·
	1-SSTB07 - 31/2	XI'		(8)									·-·
	-557806-8	XI.		(2)				 -					
	1-STTBOG	V			 		1						
	U-\$\$1805			12			 		DOP 101	8/4			
	I-SSTBAL			X					-Day 1	0/9/9			····
10-9-96 V B)	N-SST805-41	X	1	8	<u> </u>					777	<u>) </u>		·
A -													
			_	1	_				· · · · · · · · · · · · · · · · · · ·				
				1			-						
SPECIAL INSTRUCTIONS:		11		<u> </u>		<u> </u>			PROJ.	MGR.:			
TSC Dall on w Deliver	SAMPLES TAMPER EVIDENT SEAL NO.:	SEAL INT.	ACT?	YES	NO .	NOT	PRESE	NT	L/	MGR.: DETE	VAG	/	
TSC. Drill Our w Deliver to in House GAB	SAMPLES RECEIVE	ED ON ICE	≣?	YES	NO	TEMP:		<u></u>					
, , , , , , , , , , , , , , , , , , , ,	1									<i>:</i>			
(1) 50	SIGNATURE D	ATE	TIME				_		CICNATUDE				
	- Control Control	///-	· IIVIL					+	SIGNATURE			DATE	TIME

the contract of the contract o

TIME RELINQUISHED BY: 1 / All - 17 RECEIVED BY: 15 Obull RECEIVED BY RELINQUISHED BY RELINQUISHED BY: RECEIVED BY: RELINQUISHED BY RECEIVED FOR LABORATORY BY:

C-O-C No. 013771

NAME OF COURIER:	
AIRBILL NUMBER:	

SPECIAL

TURNAROUND

_	

TSC DIII COW DELIVER SAMPES TO THEIR IN-HOUSE LAB			/ X	10-1046 X BW-S	DATE TIME COMP	Shad G. Try	SAMPLER(S)	JECT I	MONTGOMERY WATSON	
TAMPER EVIDENT SEAL INTACT?YESNO SEAL NO:YESNO _TE SAMPLES RECEIVED ON ICE?YESNO _TE			SW-STTB01A-3' 18		SAMPLE : 3		ONTAINE SAN	3920, 8074 004/	CHAIN OF CUSTODY RECORD	(, , , , , , , , , , , , , , , , , , ,
NOT PRESENT PROJUGRY UNGT	A				REMARKS MATRIX				D □ ACT 307 □ REPORT DRY WT □ OTHER:	SPECIAL INSTRUCTIONS:
	* 4				AIX LAB NO.	LAB USE ONLY			☐3 DAYS ☐1 DAY	TURNAROUND 2 WEEKS (standard)

// / / SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
RELINQUISHED BY: LANGE OF THE STATE OF THE S	10/10/16	1630	10/10/16/1630 RECEIVED BY: (1) Yout Yrold	10/10/96	
RELINQUISHED BY			RECEIVED BY: ALL AND COME OF THE PROPERTY OF T	9 5 m(0)	
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED FOR LABORATORY BY:		

c-o-c No. 013775

AIRBILL NUMBER:	NAME OF COURIER:

		<u> </u>	40 621		SPECIAL INSTRUCTION	דט S:	RNAROUND EKS (standard)
MONTGOMERY WATSON CHAIN	OF CU		DY RECOR	D	WI LUST ACT 307 REPORT DRY W OTHER:	☐1 WE	EK YS
PROJECT NAME: BLACKWEL'- CITY: DU AGE COUNTY SAMPLER(S) SAMPLER(S) PROJECT #: 3920.004	/	CONTAIN	Chity of the Charles				
COLLECTION COLLECTION CHARD SAMPLE ID		P. 9,		///		LABU	SE ONLY
DATE TIME COMP		o XX		/ / /	REMARKS	MATRIX	LAB NO.
10-1196 X BW-SSTB03D-10	<u> </u>	, K		 - 	<u> </u>		
10-1596 X BW-STTB 1860 71 10-1596 X BW-STTB 1860 71 10-1596 X BW-STTB 2060 81 10-1596 X BW-STTB 2060 81			 \infty		* Sa Note		
10-1596 X BW-STTB 18677' 10-1596 X BW-STTB 20678'				 	A SE NOIE		
10-15-96 X BW-STTB136-5'		<u> </u>					
SEAL N	10.:		YESNO		PHOJ. MGB	EVAGT	
SAMPLES RI	ECEIVED ON	ICE? _	YES NO TEMF	P:0C			
SIGNATIVAE	DATE	TIME		\	SIGNATURE	DATE	TIME
RELINQUISHED BY: Ld U.1 Wh			RECEIVED BY:	motol 1		10/4	A
RELINQUISHED BY			RECEIVED BY:		le na la	10/16/4	
RELINQUISHED BY:			RECEIVED BY:	7	W. Carrier		
RELINQUISHED BY			RECEIVED FOR LABOR	RATORY BY:	•		
				·			أحصيب

C-O-C No. 013774

NAME OF COURIER: _____

S. Best & _ 10, 52,

SPECIAL INSTRUCTIONS:

TURNAROUND

MONTGOMERY WATSON CHAIN	OF CL				•	COF	RD			PECFA WILUS ACT 30 REPOR	7 T DRY WT	☐2 WEEKS (standard ☐1 WEEK ☐3 DAYS ☐1 DAY		
PROJECT NAME BLACKWELL LANDAII CHY: SAMPLEASS J. J. J. J. J. J. J. J. J. J. J. J. J. J	/	OF CONTAINERS	The case	12 Mark	it !			<i> </i>			[-		105.01	
COLLECTION COLLECTION GRAB SAMPLE ID		O.O	1,		/ /	/ /			/ /			LAB	JSE ON	
DATE TIME COMP 10-17-96	OK OK NP IN IN		XXXXX							REMARK	S	MATRIX		AB NO.
							<u> </u>		 _	· · · · · · · · · · · · · · · · · · ·				150
TSC Drill Crew Periver Symples SEAL	VIDENT SEAL NO.: RECEIVED ON								_	PROJ	MGR. VA	rct		
" INGNAMURE	DATE	TIM	1E			$\overline{}$		7	S	IGNATURE		DAT	ΕT	TIME
RELINQUISHED BY:	10/11/90	120	0 1	RECEIV	ED BY:	TIX	Phi	k K	nath	^ ^		10/1		
RELINQUISHED BY			ı	RECEIV	ED B¥	文:	~W ~ (人)か		D.V	000		10/8	abla	
RELINQUISHED BY:					ED BY:		(**		WVAK		1		
BELINOLIISHED BY	_	 		RECEIV	ED FOR	R LABO	BATOR	Y BY:					_	

C-O-C No. 013795

NAME OF COURIER	l:	
AIRBILL NUMBER:	·	

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WELL REDEVELOPMENT FORMS

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

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 Project Name
 Blackwell Landfill
 Well No.
 G117

 Location
 DuPage County
 Project No.
 3920.0041

 Developed By
 DAP/ACC
 Checked By

1.	Can this we	ell be purged dry	?	☐ Yes	No	10	Donth to	Water	Before D	evelopment	Af	ter Development
2.	Well devel	opment method				10	Depth to (from top well case	of of	a1	4.92	·ft	1 4.9 2 1
	surged with surged with surged with	n bailer and bailer n bailer and pump n block and bailed n block and pump n block, bailed an	ed i ed				Date:		mm	/ 23 / 96 dd yy ■ a.m 40 □ p.m		10 / 24 / 96 mm dd yy a.m.
	bailed only pumped on pumped slo Other	ly		□ □ ■		11	bottom:	t in well	Clear	inch	ies	inches
3.	Time spent	developing well			9 0 m	iin.	Water	Color	Turbid (Descri Clear	be)	Tu	rbid escribe) Clear
نس	(From well	depth (TOC) ((construction sum vell depth (Before	mary)		9.0 ft			Odor Turbidity HNu	None None N/A			None None N/A
Measured well depth (After)300						.		ol. (gallons)	0.057(R ² - r ²)ls = =	1	9 7
	Inside diam	eter of well water in filter pac	ck and wall		0 0 ir 4 4 g	ı. Sat	•		ack (ft.) (ls)			2.0
	casing	-				Lei	_	er column (f				5.08
	Volume of Relative rec	water removed frovery rate		1. per.	<u>0</u> . <u>0</u> g	Co		dwater samp		l radius (in.) fluids were us	sed and	well is
۱. ۲	Volume of	water added (if a	ny)	None	g	al. 13		pended soli Unfiltered)	ds		mg/l	
9.	Source of v			None				Unfiltered S	ulfuric)	(BEFORE)	mg/l	mg/l
	Time	Gallons Purged	pН	Spec. Cond.	T deg. C	Spec. at 25	Cond. leg. C	Color	Odor	Meter Turb.	D.O.	Comment
	1052	30	6.60	700	12.5			Clear	None	0.19	2.2	
	1100	50	6.90	685	12.6			Clear	None		2.19	
L	1115	100	7.20	588	12.5			Clear	None	0.10	2.15	
L	1130	150	7.34	570	12.5			Clear	None	0.10	2.15	
L	1144	200	7.40	570	12.5		· · · · · · · · · · · · · · · · · · ·	Clear	None	0.02	2.1	
L	1200	240	7.54	574	12.5		·····	Clear	None	0.02	2.13	
L			ļ		ļ							
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WATSON

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Project Name	Blackwell Landfill	Well No.	G121	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. Can this	well be purged dry?	<u> </u>	☐ Yes	No			Before De	evelopment	Afl	er Development
2. Well der	relopment method				10 Depth to (from top well casi	o of	a1	1.62	ft	1 1.65 ft.
_	rith bailer and bailed rith bailer and pumpe	ed			Date:	iig <i>)</i>	b. 10	/ 23 / 96		10 / 25 / 96
	ith block and bailed				:		mm	dd yy	· 1	mm dd yy
_	rith block and pumpe	ed						□ a.m.	,	a.m.
	rith block, bailed and	pumped			Time:		c. <u>12</u> :	30 p.m.	. 11	_ : <u>00</u> 🖂 p.m.
compres					1, 6, 1					
bailed or pumped	•				11 Sediment	in Well		- inch		inches
pumped	-				Contoni.					
Other	Surged with Pum	ıp			12 Water Of	bservations:	Clear		Cle	ar 💼
			-				Turbid		Tu	rbid 🗀
3. Time spe	ent developing well			2 0 m	in.	_	(Describ		(De	escribe)
Ţ	II. 1. (TOO) (00)	_			Color	Black/G	гау	- .	Clear
`	II depth (TOC) — (I	•	$-\frac{2}{}$	<u>0</u> . <u>0</u> ft.		Odor	Septic		.] .	Slight Septic
(From we	Il construction summ	nary)				Turbidity HNu	Turbid			None
Measured	well depth (Before)	1	2	<u>0</u> . <u>6</u> ft.						
Measured	l well depth (After)		2	0 . 8 ft.	Filter Pack Vo	ol. (gallons)	0.057(R ² - r ²)	ls = .		0.7
5. Inside di	ameter of well		4	. 0 0 in	Well casing V	ol. (gallons)	0.16r ² l	=		5.7
					Saturated length of sand pack (ft.) (ls)9.0					
Volume of water in filter pack and well casing			6.4 ga	Length of wat	er column (ft	.) (1)		8	. 9 _8	
7. Volume	of water removed fro	om well	1 1	0.0 ga	l. R = Radius of	borehole (in.) r = Well	radius (in.)		
					Collect ground		e if drilling flu	ids were used	and wel	l is
Relative	ecovery rate		ft. per	m	in. at solid waste	facility:				
					13 Total sus	pended solid	s		mg/l	mg/l
Volume	of water added (if an	y) .	None	ga	i i	Unfiltered)	•			
9. Source of	f water added		None		14. COD				mg/l	mg/l
<u></u>						Unfiltered Su	lfuric)	(BEFORE)	· · ·	(AFTER)
Time	Gallons Purged	pН	Spec. Cond.	deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Meter Turb.	D.O.	Comment
940	25	12.4	550	13.5		Lt. Gray	Septic	33.50	1.61	200 NTU for
945	40	12.4	545	13.7		Lt. Gray	Septic	18.80	1.64	Turbidity
948	70	12.5	545	13.8		Lt. Gray	Septic	8.90	1.69	200 NTU for
952	90	12.6	545	14.0		Clear	Sl. Septic		1.63	Turbidity
957	110	12.6	545	14.0		Clear	Sl. Septic	8.90	1.60	
									<u> </u>	
				$\begin{bmatrix} & & & & & & & & & & & & & & & & & & &$						
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MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

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Project Name	Blackwell Landfill	Well No.	G122	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By	<u></u>	

1. Can this v	vell be purged dry	î	☐ Yes	■ No	10 Dep	th to Water	Before	Development	Af	ter Development
2. Well deve	elopment method				(fro	m top of casing)	a	1 4 4 4	·ft	1 4 4 0
surged wi surged wi surged wi	th bailer and baile th bailer and pump th block and baile th block and pump th block and pump th block, bailed an	ped d ped			Date		mi	0 / 23 / 96 m dd yy ■ a.m : 40 □ p.m		10 / 28 / 96 mm dd yy ■ a.m. : 00 □ p.m.
compresse bailed onl pumped or pumped sl Other	ed air y nly				11 Sedi	ment in well	Clear	inch	nes	inche
	at developing well	<u> </u>		3 <u>0</u> m	1		Turbi (Desc	d 🗀	Tu	rbid escribe)
	depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (TOC) (electric depth (e		2	. <u>5</u> . <u>5</u> ft.		Color Odor Turbidity HNu	Clear None Clear N/A			None Clear N/A
Measured	well depth (Before	:)	2	5.6 ft.		ck Vol. (gallons)	0.057(P2	r^2)ls =	<u> </u>	
Measured	well depth (After)		2	5.6 ft.	1	ing Vol. (gallons)		·		7.1
5. Inside diar	meter of well		4	. <u>0</u> <u>0</u> in		l length of sand p	ack (ft.) (Is)		1.2
6. Volume of casing	water in filter pa	ck and well	2	0 . 4 ga	1.	f water column (,		1.2
	f water removed fr		1 2 ft. per.		Collect g	us of borehole (in roundwater samp waste facility:			sed and	well is
Volume of	f water added (if a	ny)	None	ga		il suspended soli ml Unfiltered)	ds		mg/l	mg/
9. Source of	water added		None		14. COI) ml Unfiltered S	ulfuric)	(BEFORE)	mg/l	mg/
	Gallons		Spec.	T	Spec. Cond.		1	Meter		
Time	Purged	pH	Cond.	deg. C	at 25 deg. C		Odor	Turb.	D.O.	Comment
945 950	20	7.14 6.90	840 840	12.7		Clear Clear	None None	Clear Clear	1.49	
955	60	6.83	834	13.4		Clear	None	Clear	1.30	
1000	80	6.93	835	13.4	· · · · · · · · · · · · · · · · · · ·	Clear	None	Clear	1.20	
1005	100	6.89	838	13.3		Clear	None	Clear	1.24	
1010	120	6.90	835	13.3		Clear	None	Clear	1.20	
				-			<u> </u>			
Li2020/Gint/G	122 DEV vie	1	<u> </u>				l	_1		

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

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(17)	ı
W	,

Project Name Blackwell Landfill Well No. G123
Location DuPage County Project No. 3920.0041
Developed By DAP/ACC Checked By

[1_C4]	-11 1 1 1 - (- 37				Defees D	\\	1 40	D1
1. Can this w	ell be purged dry	<i>!</i>	☐ Yes	No	10 Depth to	Water	Before L	Development	AII	er Development
	opment method				(from to well cas	p of ing)	a1	5.30	ft. —	1 5.30 ft.
1 -	h bailer and baile				Datas		1,	125 1 06		10 / 25 / 07
	h bailer and pump h block and bailed				Date:		b. 10 mm	/ 25 / 96 dd yy	- .	10 / 25 / 96 nm dd yy
_	h block and pump				[11111	a.m.		nm dd yy ■ a.m.
_	h block, bailed an				Time:		c. 8 :	00 □ p.m.	. i .	-
compresse			ā							
bailed only					11 Sedimen	t in well				
pumped or	-				bottom:			. <u> </u>	es	inches
pumped sle Other	owiy				12 Water O	bservations:	Clear	_	Cle	ar =
Oulei			Ü		12 Water O	USCI Vations.	Turbid			rbid 🖂
3. Time spent	developing well			2 0 mi	n.		(Descri			escribe)
						Color	Clear			Clear
	depth (TOC) ((2	1.5 ft.		Odor	None			None
From well	construction sum	mary)				Turbidity	Clear			Clear
Measured v	vell depth (Before	•)	າ	2 . 0 ft.		HNu	N/A			N/A
Wicasurea	ven depai (Deloie	•)		<u>-</u>	Filter Pack V	-1 (11)	0.057(D2 -2)ls =		9 0
Measured v	vell depth (After)		2	2.0 ft.	Filler Pack V	oi. (gailons)	0.037(R - 1)is		8.0
, wiedsared	ven deput (ruter)		- <u>-</u>		Well casing V	/ol. (gallons)	0.16r ² l	· =		4.3
5. Inside dian	neter of well		4	. <u>0</u> <u>0</u> in.				-		6.7
6. Volume of casing	6. Volume of water in filter pack and well 1 2 . 3 gal.					-		-		6. 7
1								-		
7. Volume of	water removed from	om well		5 0 ga			·		. 1 1 .	
Relative red	covery rate		ft. per.	mi	I•		ie ii driiing	fluids were us	ed and v	well is
					13 Total su	enandad soli	de l		mg/l	mg/l
8. Volume of	water added (if a	ny)	None	. ga		Unfiltered)	us		mg,	
Source of a	vater added		None —			14. COD		***		mg/l
Source or	water added		Mone			Unfiltered S	ulfuric)	(BEFORE)	mg/l	(AFTER)
Time	Gallons Purged	рН	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Meter Turb.	D.O.	Comment
845	25	9.66	566	13.7	at 23 deg. C	Clear	None	11.36	2.80	200 NTU Sale
852	40	9.45	597	13.8		Clear	None	3.74	1.85	for Turbidity
855	55	9.42	600	14.0		Clear	None	2.60	2.03	
900	70	9.47	498	14.1		Clear	None	2.50	1.98	
905	85	9.51	601	14.0		Clear	None	2.20	2.12	
	<u> </u>									
						1				
L			L				<u> </u>			<u></u>

WATSON

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Project Name	Blackwell Landfill	Well No.	G126	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. Can this v	vell be purged dry	?	☐ Yes	No				Before 1	Development	A	fter Development
2. Well deve	lopment method				1	 Depth to (from to) well casi 		a	2.36	.ft	1 2.3 6 ft
surged wit	th bailer and baile th bailer and pump th block and baile	ped d				Date:		b. <u>1</u> (, , ,		10 / 28 / 96 mm dd yy
	th block and pump th block, bailed ar td air					Time:		c. <u>11</u> :	30 □ p.m		a.m.
bailed only pumped or pumped sl	y nly				1	1 Sedimen bottom:	t in well	_	inch	es	inches
Other						2 Water O	bservations:	Clear Turbid		Τι	ear urbid
	t developing well			1 5 n			Color Odor	(Descr Clear None	ibe)	. (D	escribe) Clear None
آ (From well	depth (TOC) (construction sum	mary)		7.7 f			Turbidity HNu	Clear N/A			Clear N/A
Measured	well depth (Before	e)	1	$\frac{9\cdot 3}{}$ fi		ilter Pack V	ol. (gallons)	0.057(R ² - r	²)ls =		8.3
Measured v	well depth (After)		1	9.3 ft	.		ol. (gallons)		=		4.4
5. Inside diar				. <u>0</u> <u>0</u> ii	S	aturated leng	gth of sand p	ack (ft.) (ls)			6.9
6. Volume of water in filter pack and well 1 _ 2 . 7 gal. casing						ength of wat	er column (f	t.) (1)			6.9
7. Volume of water removed from well 7 0 0 gal. Relative recovery rate ft. per min.					C		dwater samp		ell radius (in.) fluids were us	sed and	well is
8. Volume of water added (if any) None gal.				13 Total suspended solids mg/l (500 ml Unfiltered)			mg/l				
Source of	water added		None		1	4. COD (250 ml	Unfiltered Si	alfuric)	(BEFORE)	mg/l	(AFTER)
Time	Gallons Purged	pН	Spec. Cond.	T deg. C		c. Cond. deg. C	Color	Odor	Meter Turb.	D.O.	Comment
8:10	15	6.78	1360	13.0		-	Clear	None	Clear	1.62	<u> </u>
8:12	25	6,90	1140	14.0			Clear	None	Clear	1.47	
8:15	40	6.89	1110	14.1			Clear	None	Clear	1.43	
8:20	60	6,73	1110	14.2			Clear	None	Clear	1.48	
8:24	70	6,79	1120	19.0			Clear	None	Clear	1.48	
								<u></u>		<u> </u>	
	1				<u></u>	,		<u> </u>			

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Project Name	Blackwell Landfill	Well No.	G127	
Location -	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. Can this well be purged dry?
surged with bailer and bailed surged with bailer and pumped surged with block and bailed surged with block and pumped surged with block and pumped compressed air bailed only pumped slowly Other
surged with block and bailed surged with block and pumped surged with block and pumped surged with block and pumped surged with block, bailed and pumped compressed air bailed only pumped only pumped slowly Other
surged with block and bailed surged with block and pumped surged with block, bailed and pumped compressed air bailed only pumped only pumped slowly Other
surged with block, bailed and pumped compressed air bailed only pumped only pumped slowly Other 3. Time spent developing well 4. Total well depth (TOC) (GS) (From well construction summary) Measured well depth (Before) 5. Inside diameter of well 6. Volume of water removed from well 7. Volume of water removed from well Time: C. 12 00 p.m. 11 : 30 conditions in the control of the p.m. 11 : 30 conditions in the control of the p.m. 11 : 30 c
compressed air bailed only pumped only pumped slowly Other 3. Time spent developing well 4. Total well depth (TOC) (GS) (From well construction summary) Measured well depth (Before) 5. Inside diameter of well 6. Volume of water in filter pack and well casing 7. Volume of water removed from well 11. Sediment in well bottom: 12. Water Observations: Clear Turbid (Describe) Color Clear Odor None Turbidity Clear Clear Clear None Turbidity HNu N/A N/A Filter Pack Vol. (gallons) 0.057(R²- r²)ls = 7.5 Well casing Vol. (gallons) 0.16r²1 = 4.0 Saturated length of sand pack (ft.) (ls) Saturated length of water column (ft.) (l) 6. 3 R = Radius of borehole (in.) r = Well radius (in.) Collect groundwater sample if drilling fluids were used and well is
pumped slowly Other 12 Water Observations:
pumped slowly Other 12 Water Observations: Clear Turbid (Describe)
Other Other Clear Turbid (Describe) Clear Turbid (Describe) Clear Turbid (Describe) Clear Turbid (Describe) Clear None Clear Turbid (Describe) Clear None Clea
3. Time spent developing well 4. Total well depth (TOC)— (GS) (From well construction summary) Measured well depth (Before) 2 0 9 ft. Filter Pack Vol. (gallons) 0.057(R²- r²)ls = 7 . 5 Measured well depth (After) 2 0 9 ft. Filter Pack Vol. (gallons) 0.16r²1 = 4 . 0 Saturated length of sand pack (ft.) (ls) 6. Volume of water in filter pack and well casing 7 0 0 gal. R = Radius of borehole (in.) r = Well radius (in.) Color Clear None Clear N/A Filter Pack Vol. (gallons) 0.057(R²- r²)ls = 7 . 5 Well casing Vol. (gallons) 0.16r²1 = 4 . 0 Saturated length of sand pack (ft.) (ls) 6 . 3 7. Volume of water removed from well 7 0 0 gal. R = Radius of borehole (in.) r = Well radius (in.) Collect groundwater sample if drilling fluids were used and well is
4. Total well depth (FOC)— (GS) (From well construction summary) Measured well depth (Before) 2 0 9 ft. Measured well depth (After) 5. Inside diameter of well 6. Volume of water in filter pack and well casing 7. Volume of water removed from well 7. Volume of water removed from well A Total well depth (FOC)— (GS) 1 9 0 ft. Color Odor None None Clear N/A N/A Filter Pack Vol. (gallons) 0.057(R²- r²)ls = 7 . 5 Well casing Vol. (gallons) 0.16r²1 = 4 . 0 Saturated length of sand pack (ft.) (ls) Saturated length of sand pack (ft.) (ls) Collect groundwater sample if drilling fluids were used and well is
(From well construction summary) Measured well depth (Before) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Measured well depth (After) Mell casing Vol. (gallons) 0.057(R²- r²)ls Mell casing Vol. (gallons) 0.16r ²1
Measured well depth (Before) 2 0 9 ft. Filter Pack Vol. (gallons) 0.057(R²- r²)ls = 7 . 5 Measured well depth (After) 2 0 9 ft. Well casing Vol. (gallons) 0.16r²l = 4 . 0 Saturated length of sand pack (ft.) (ls) 6. Volume of water in filter pack and well casing Length of water column (ft.) (l) 7 0 0 gal. R = Radius of borehole (in.) r = Well radius (in.) Collect groundwater sample if drilling fluids were used and well is
Measured well depth (After) 2 0 9 ft. 2 0 9 ft. Well casing Vol. (gallons) 0.057(R²- r²)ls = 7 . 5 Well casing Vol. (gallons) 0.16r²l = 4 . 0 Saturated length of sand pack (ft.) (ls) 6 . 3 Length of water column (ft.) (l) 6 . 3 R = Radius of borehole (in.) r = Well radius (in.) Collect groundwater sample if drilling fluids were used and well is
Measured well depth (After) 2 0 9 ft. Well casing Vol. (gallons) 0.16r 21 = 4 0 Saturated length of sand pack (ft.) (ls) 6 3 Length of water column (ft.) (l) 6 3 R = Radius of borehole (in.) r = Well radius (in.) Collect groundwater sample if drilling fluids were used and well is
5. Inside diameter of well 4.00 in. 6. Volume of water in filter pack and well casing 1.1.5 gal. 7. Volume of water removed from well 7. Volume of water removed from well 7. Volume of water removed from well 7. Volume of water removed from well 8. Well casing Vol. (gallons) 0.16r ² l = 4.0 Saturated length of sand pack (ft.) (ls) 6. 3 Length of water column (ft.) (l) 6. 3 R = Radius of borehole (in.) r = Well radius (in.) Collect groundwater sample if drilling fluids were used and well is
6. Volume of water in filter pack and well casing 1 1 5 gal. Length of water column (ft.) (ls) 6 3 Collect groundwater sample if drilling fluids were used and well is
7. Volume of water removed from well 7 0 0 gal. R = Radius of borehole (in.) r = Well radius (in.) Collect groundwater sample if drilling fluids were used and well is
Collect groundwater sample if drilling fluids were used and well is
Collect groundwater sample if drilling fluids were used and well is
1 Deletine reconstructe to the mark that the mark that the second transfer to color the second transfer to color transfer transfer to color transfe
Relative recovery rate ft. per min. at solid waste facility:
8. Volume of water added (if any) None 13 Total suspended solids (500 ml Unfiltered) mg/l
Source of water added None 14. COD mg/l
(250 ml Unfiltered Sulfuric) (BEFORE) (AFTER)
Time Gallons Spec. T Spec. Cond. Meter Purged pH Cond. deg. C at 25 deg. C Color Odor Turb. D.O. Comme
11:00 10 Not Working 13.4 Clear/Lt Yellow None 24.0 1.80 200 NTU
11:04 20 Not Working 13.4 Clear/Lt Yellow None 7.4 1.86 for Turbi
11:08 30 Not Working 13.1 Clear/Lt Yellow None 8.0 1.80
11:12 40 Not Working 13.1 Clear None 6.2 1.80
11:16 50 Not Working 13.1 Clear None 3.2 1.65
11:20 60 Not Working 13.1 Clear None 2.8 1.65
11:24 70 Not Working 13.1 Clear None 2.8 1.60

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

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 Project Name
 Blackwell Landfill
 Well No.
 G128D

 Location
 DuPage County
 Project No.
 3920.0041

 Developed By
 DAP/ACC
 Checked By

1. Can this w	ell be purged dry	?	☐ Yes	■ No	10 Depth to	Water	Before	Development	Af	ter Development	
2. Well devel	opment method				(from to well cas	p of	a	5.49	.ft	1 5.49 ft.	
surged with surged with surged with	h bailer and baile h bailer and pum h block and baile h block and pump h block, bailed ar	ped d ped			Date:	·	mn	0 / 23 / 96 n dd yy ■ a.m 00 □ p.m	. 1 .	10 / 24 / 96 mm dd yy □ a.m. : 00 ■ p.m.	
compressed bailed only pumped on pumped slo Other	d air ly	•			11 Sedimen bottom:			inch	ies	inches	
3. Time spent developing well				7 0 m		bservations:	Clear Turbio (Desci		Tu	ear = rbid cscribe)	
	depth (TOC) (construction sum			4.5 ft.		Color Odor Turbidity HNu	None Cloud N/A			None Clear N/A	
Measured v	vell depth (Before	e)		6.4 ft.	Filter Pack V	ol. (gallons)	0.057(R ² - r	²)ls =		4.4	
				6.4 ft.	Well casing \	Well casing Vol. (gallons) $0.16r^21 = 26$.					
	Notice diameter of well Volume of water in filter pack and well			. <u>0</u> <u>0</u> in	Saturated len	gth of sand p	ack (ft.) (ls)	1	2.0	
casing	ck and well		0.6 gs	Length of wa	ter column (f	t.) (1)		4	0.9		
7. Volume of water removed from well Relative recovery rateft			2 <u>4</u> ft. per.	0.0 ga		dwater samp		ell radius (in.) g fluids were us	sed and	well is	
8. Volume of	water added (if a	nny)	None	ga	al. 13 Total sus	spended soli Unfiltered)	ds	-	mg/l	mg/l	
Source of v	vater added		None		14. COD (250 ml	Unfiltered S	ulfuric)	(BEFORE)	mg/l	(AFTER) mo/	
Time	Gallons Purged	pН	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Meter Turb.	D.O.	Comment	
14:58	40	7.71	698	12.7		White Cloud	ly None	159.5	2.10	200 NTU Sale	
15:10	80	7.60	740	12.8	·	White Cloud	ly None	128.6	2.10	for Turbidity	
15:22	120	8.40	735	12.4		Clear Lt. Gra	ay None	37.5	2.06		
15:34	160	8.70	727	12.4		Clear Lt. Gr	ay None	25.4	2.05		
15:46	200	8.76	725	12.4	(lear Lt. Gr	ay None	12.0	2.07		
16:00	240	8.76	730	12.4	(Clear Lt. Gr	ay None	10.1	2.04		
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Project Name	Blackwell Landfill	Well No.	G129	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. C	an this w	ell be purged dry?	,	☐ Yes I	No			Before I	Development	Aft	er Development	
2. V	Vell devel	opment method				(f	epth to Water from top of rell casing)	a	9 9 0	ft	<u>9.90</u> ft.	
s s s	urged with urged with urged with urged with	n bailer and bailed n bailer and pump n block and bailed n block and pump n block, bailed and	ed l ed			D	ate:	b. 10 mm	□ a.m.		10 / 29 / 96 nm dd yy ■ a.m. : 00 □ p.m.	
b p p	ompressed ailed only sumped on sumped slo other	ly				bo	ediment in well ottom: /ater Observations:	 Clear	inch	es Cle	inches	
1	3. Time spent developing well				3 0 m	in.		Turbid (Describe)			bid cscribe)	
	4. Total well depth (TOC) (GS) From well construction summary)		1	7.5 ft.		Color Odor Turbidity		Rusty Musty		Slight Rust None Clear		
М	easured w	ell depth (Before		<u>9.2</u> ft.						N/A		
Measured well depth (After)1 _ 9 . 2					9.2 ft.		Filter Pack Vol. (gallons) $0.057(R^2-r^2)$ ls = $\frac{1}{2} \cdot \frac{2}{0}$					
5. Inside diameter of well4 . 0 0 is					<u>0</u> <u>0</u> in	.	asing Vol. (gallons) ted length of sand p		= .	— <u> </u>	$\frac{6 \cdot 4}{0 \cdot 2}$	
Volume of water in filter pack and well 1 casing					8.4 ga	d.	of water column (f		•		0.2	
7. Volume of water removed from well 1 2 0 0 gal. Relative recovery rate ft. per. min.					Collec	adius of borehole (ir t groundwater samp d waste facility:			ed and v	well is		
8. Volume of water added (if any) None gal					13 T	13 Total suspended solidsmg/l						
1		vater added	• •	None			14. COD (250 ml Unfiltered St		(BEFORE)	mg/l	mg/l	
	Time	Gallons Purged	pН	Spec. Cond.	T deg. C	Spec. Con at 25 deg	nd.	Odor	Meter Turb.	D.O.	Comment	
	9:40	20	8.90	800	12.2		Rust	Musty	To High	3.40	200 NTU Sale	
	9:45	40	8.40	800	12.1		Rust	Musty	to Read	3.35	for Turbidity	
	9:50	60	7.79	805	12.3		Sl. Rust	None	104.0	2.89		
	9:55	80	7.52	800	12.3		Sl. Rust	None	75.0	2.86		
	10:00	100	7.36	800	12.3		SI. Rust	None	60.0	2.86		
	10:50	120	7.35	800	12.3		Sl. Rust	None	56.0	2.86		
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Project Name	Blackwell Landfill	Well No.	G133S	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		-

1. Can this w	ell be purged dry?		☐ Yes	No	١.			Before I	Development	A	fter Development
2. Well develo	opment method					0 Depth to (from tor well casu	of	a1	5.74	ft	1 5.7 4 f
	bailer and bailed										
	n bailer and pumpe n block and bailed	ed				Date:) / 23 / 96		10 / 28 / 96
	n block and balled In block and pumpe	·d						mm	ı dd yy ■ a.m.		mm dd yy
_	block, bailed and					Time:		c. 9 :	45 p.m.		a.m. .: 30 <u>==</u> p.m.
compressed		r r									
bailed only					1	1 Sediment	in well				
pumped on						bottom:		_	inch	es	inche
pumped slo	owly									1	
Other					1	2 Water Ob	servations:	Clear			ear
3 Time spent	developing well		1	5 0 m				Turbid (Descri	he)		ırbid 🔲 Describe)
J. Time spent	developing wen		_ 	 "	·····		Color	,	Brown	"	Clear
4. Total well o	iepth (TOC) — (GS)	2	1.0 ft	.		Odor	None		j	None
	construction sumn						Turbidity	Modera	nte		None
							HNu	N/A		1	N/A
Measured w	ell depth (Before)	1	2	3.0 ft	·						
						ilter Pack Vo	l. (gallons)	$0.057(R^2-r^2)$)ls =		8. 7
Measured w	ell depth (After)		2	<u>3</u> . 0 ft				0 1 6 21			
5. Inside diam	eter of well		. 4	. 0 0 in		veil casing v	ol. (gallons)	0.16r ² l	=		4.6
J. Iliside Giali	oter or wen			· <u> </u>		aturated leng	th of sand pa	ck (ft.) (is)		7	. 2 6
6. Volume of water in filter pack and well 1 3 3 gal.				ai.	_	·		•			
casing					L	ength of wat	er column (ft	.) (1)			. 2 6
7. Volume of	water removed fro	om well	7	5.0 g	al. R	t = Radius of	borehole (in.) r = We	ll radius (in.)		
								if drilling f	uids were used	and we	ll is
Relative rec	overy rate		ft. per.	n	in. a	t solid waste	facility:				
8. Volume of	water added (if an	ıy)	None	· _ g	. 1		pended solid Infiltered)	s		mg/l	mg/l
Source of v	water added		None			14. COD				mg/l	m~1
							Jnfiltered Su	lfuric)	(BEFORE)	,	(AFTER)
Time	Gallons Purged	рН	Spec. Cond.	T deg. C		c. Cond. 5 deg. C	Color	Odor	Meter Turb.	D.O.	Comment
	 		····		4.2.				 		Comment
13:30	15	7.53	1050	13.2		L	t Gray Brow	/n None	Mod. Turb	1.78	
13:33	30	7.22	1070	13.0			Clear Gray	None	Low Turb.	1.74	
13:36	40	7.13	1075	13.0			Clear Gray	None	Low Turb.	1.57	
13:39	60	7.25	1072	13.0		*****	Clear Gray	None	Week to Cle	1.55	
13:42	75	7.10	1080	12.9			Clear	None	Week to Cle	1.50	
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MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY



Project Name Blackwell Landfill Well No. G133D

Location DuPage County Project No. 3920.0041

Developed By DAP/ACC Checked By

1. Can this v	vell be purged dry?	?	☐ Yes	■ No				Before I	Development	Aft	er Development
2. Well deve	elopment method				1	10 Depth to (from top well cas:	oof	a1	6.20 f	t.	1 6.2 0 ft.
surged wi	th bailer and bailed	d					O,				
, -	th bailer and pump					Date:		b. <u>10</u>	/ 23 / 96		10 / 28 / 96
. ~	th block and bailed							mm	dd yy	r	nm dd yy
	th block and pump	•							a.m.		☐ a.m.
	th block, bailed an	d pumped			- }	Time:		c. <u>9</u> :		1 2	: _50 ■ p.m.
compresse					١.					1	
bailed onl	•				1 '	1 Sediment	in well		1 0 :		0
pumped or pumped sl			=		- 1	bottom:	i		1 . 2 inche	s	0 _ inches
Other	Surged with Pum	ın			1	2 Water Ol	oservations:	Clear		Cle	er —
Outer	Junged Wildi T uni	<u></u>	_		1 1	2 Water of	Joen vacions.	Turbid			bid
3. Time spen	t developing well		6	0 0 m	in.			(Descri	L		escribe)
•							Color	White/		`	Clear
4. Total well	depth (TOC) (C	GS)	5	3.0 ft.			Odor	None		'	None
From well	construction summ	mary)					Turbidity	Turbid		'	None
\sim							HNu	N/A			N/A
Measured '	well depth (Before)		4.0 ft.	·						
1					F	ilter Pack Vo	ol. (gallons)	$0.057(R^2-r^2)$)ls =	1	4.3
Measured '	well depth (After)			4. <u>1</u> ft.					_		
5. Inside diameter of well				. 0 0 in		Well casing V	ol. (gallons)	0.16r ² l	= _	$-\frac{2}{}$	4.2
				· 	s	Saturated leng	gth of sand p	ack (ft.) (ls)		_ 1	2.0
6. Volume of water in filter pack and well 3 8 casing						ength of wat	er column (f	en an		3	7.8
						-			_	_ <u> </u>	- · - ·
7. Volume of water removed from well $\frac{2}{1} = \frac{1}{0}$				0.0 ga					ll radius (in.)		
Relative recovery rate ft. per.				m		Collect ground it solid waste		le if drilling	fluids were use	d and v	vell is
Relative recovery rate					l		•			1	1
8. Volume of	f water added (if ar	ny)	None gal.			13 Total sus (500 ml V	pended soli Unfiltered)	ds	n	ng/l	mg/l
Source of	Source of water added		None		1	14. COD			n	ng/l	mg/l
							Unfiltered Si	ılfuric)	(BEFORE)		(AFTER)
Time	Gallons Purged	pН	Spec. Cond.	T deg. C		c. Cond. 5 deg. C	Color	Odor	Turb.	D.O.	Comment
14:00	40						Gray	None	Turbid		
14:10	80	7.68	875	13.0			Clear	None	Clear	0.86	
14:20	120	7.10	888	12.3		<u> </u>	Clear	None	Clear	0.78	
14:30	160	7.10	875	12.2			Clear	None	Clear	0.77	
14:40	190	7.00	875	12.0			Clear	None	Clear	0.70	
14:50	210	7.00	875	12.0			Clear	None	Clear	0.70	
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Project Name	Blackwell Landfill	Well No.	G136	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. Ca	n this w	ell be purged dry	?	Yes	□ No	T	,		Before	Development	Af	ter Development
2. We	ell devel	opment method		_		10	Depth to		a.	1 7.42		9 3.00 f
l		n bailer and baile	d			į	well cas	ing)			-```	
sur	ged with	n bailer and pump	ped				Date:		b 1	0 / 23 / 96		10 / 29 / 96
•	_	block and bailed							m			mm dd yy
		n block and pump n block, bailed an					Time:		c. 2	a.m : 30 <u>==</u> p.m		a.m. : 35 □ p.m.
	npressed		a pampoa						· <u>-</u>	. <u>50</u> p.n.	" 	_ · _ p.m.
	led only					11		t in well				
	nped on nped slo						bottom:		_	incl	ies	inche
Otl	-	wiy				12	Water O	bservations:	Clear		Cle	ear 🗀
	,			,					Turbi	d 🗀		rbid 🗀
3. Tin	ne spent	developing well			1 8 m	in.		Color	(Desc Sl. Cl	•	(D	escribe) Sl. Cloudy
4. Tot	al well	depth (TOC) ((GS)	1 0	1.0 ft.			Odor	None		.	None
		construction sum						Turbidity	Sligh		<u> </u>	Slight
Ĭ								HNu	N/A			N/A
Mea	isurea v	vell depth (Before	:)	1 0	2.8 ft.				0.00003	2		
Mes	sured u	ell depth (After)		1 0	2.8 ft.		ter Pack V	ol. (gallons)	0.057(R	r ²)ls =		8.2
""		on depart (ricer)		<u> </u>			ell casing V	/ol. (gallons)	0.16r ² 1	=	5	4.6
5. Insi	ide diam	eter of well		4	. <u>0</u> <u>0</u> in		urated len	gth of sand p	ack (ft.) (l	;)	1	2.0
6. Volume of water in filter pack and well 6 _ 2 . 8 gal. casing				ıl.	Length of water column (ft.) (1) 8 5 4							
7. Vol	ume of	water removed fr	om well	8	2.0 ga	ıl. R=	= Radius o	f borehole (in	ı.) r=W	ell radius (in.)		·
İ						Co	llect groun	dwater samp		g fluids were u	sed and	well is
Rela	ative rec	overy rate	1/10 of	ft. per. 20	sec.	at	solid waste	tacility:				
				N T				spended solie	ds		mg/l	mg/l
I	lume of	water added (if a	ny)	None	ga	N1.	(500 ml Unfiltered)					
Sou	irce of v	vater added		None		14	. COD	Unfiltered St	m m		mg/l	mg/l
		Gallons	Ī	Spec.	T	Spec.	Cond.	ommerca se	muic)	(BEFORE)	Γ	(AFTER)
T	ime	Purged	pН	Cond.	deg. C		deg. C	Color	Odor	Turb.	D.O.	Comment
8	:00	50	9.80	540	11.6			Sl. Cloudy	None	43	1.77	200 NTU Scale
												
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MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

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Project Name ,	Blackwell Landfill	Well No.	G138	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. Can	this w	ell be purged dry?	?	☐ Yes	■ No				Before	Development	Aft	er Development
2. Well	devel	opment method					10 Depth to (from tor well casi	of	a	1 6.8 3	ft	1 6.80 ft.
surge	d with	n bailer and baile	d				Well Casi	ug)				
		h bailer and pump					Date:		b . 1	0 / 23 / 96		10 / 29 / 96
		n block and bailed							mr	n dd yy	1	nm dd yy
surge	d with	n block and pump	ed							□ a.m.	.	a.m.
surge	d with	n block, bailed an	d pumped				Time:		c.	: □ p.m.		: p.m.
	ressec											-
	d only					1	11 Sediment	in well				
	ed on	•					bottom:			inch	es	inches
	ed slo	owly							.			
Othe	r						12 Water Ol	oservations:	Clear		Cle	, . , -
3 Time	cnont	developing well			3 5 m				Turbio (Desc			rbid scribe)
J. 11110	spem	developing wen			- - - "	ш.		Color	Sl. Cl	•	100	Clear
4 Total	well	depth (TOC) ((35)	5	4.0 ft	1		Odor	None			None
		construction sum						Turbidity	Cloud	<u>v</u>		Clear
			• •					HNu	N/A	<u> </u>	- 1	N/A
Meas	ured v	ell depth (Before	:)		6.2 ft	_ _		,				
Meas	ured w	ell depth (After)		5	6.2 ft		Filter Pack Vo	ol. (gallons)	0.057(R ² -1	r²)ls = .		4.3
		• • •				1	Well casing V	ol. (gallons)	0.16r ² l	= .		5.2
i	5. Inside diameter of well 4.00 in.				5	Saturated leng	gth of sand pa	ack (ft.) (Is)	1	2.0	
	6. Volume of water in filter pack and well 3 _ 9 . 5 gal. casing					Length of wat	er column (f	t.) (1)	_	3	9.4	
7 Volu	me of	water removed fro	om well	1 7	5 . 0 g	., İ,	R = Radius of	horehole (in) r=W	ell radius (in.)		
/. *****	iiic oi	water removed in	om wen		<u> </u>					g fluids were us	ed and v	vell is
Relat	ve rec	overy rate		ft. per			at solid waste			P 114142 11616 41	oc and	
8. Volu	me of	water added (if a	ny)		· g	al.	13 Total sus (500 ml	pended soli Unfiltered)	ds		mg/l	mg/l
I., our	e of v	vater added					14. COD				mg/l	mg/l
<u></u>						ł		Unfiltered St	ılfuric)	(BEFORE)		(AFTER)
		Gallons		Spec.	T		ec. Cond.			Meter		
Tim	e	Purged	pН	Cond.	deg. C	at 2	25 deg. C	Color	Odor	Turb.	D.O.	Comment
11:3		35	7.45	1015	11.6			Sl. Cloudy	None	43.50	3.43	200 NTU Scale
11:4		70	7.08	1033	11.4			Clear	None	8.57	3.11	201 NTU Scale
11:4		105	7.10	1039	11.2			Clear	None	3.92	2.91	202 NTU Scale
11::		140	7.05	1026	11.2			Clear	None	2.65	2.62	203 NTU Scale
12:0)4	175	7.05	1025	11.2	_		Clear	None	2.46	2.60	204 NTU Scale
					 					 		
					 -		· · · · · · · · · · · · · · · · · · ·			<u> </u>		
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MONTGOMERY WATSON

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Project Name	Blackwell Landfill	Well No.	G139	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. Can this w	ell be purged dry?	?	☐ Yes	No No				Before	Development	Aí	ter Development
2. Well devel	opment method					10 Depth to (from top well casi	oof	a	1 0.1 5	ft	1 0.10 ft
surged with	h bailer and baile	d			ł		8/				
_	h bailer and pump				-	Date:		b. 1	0 / 23 / 96		10 / 29 / 96
	h block and bailed				1			mr	n dd yy	.	mm dd yy
	h block and pump				1				a.m	.	a.m.
	h block, bailed an	d pumped				Time:		c. 2	00 m p.m	. 10	: <u>30</u> p.m.
compresse											
bailed only						11 Sedimen	t in well			j	
pumped on						bottom:		-	· _ inch	es	inches
pumped slo Other	owiy				ļ	12 Water O	bservations:	Clear	_		ear 🖿
Oulei						12 Water O	usci vations.	Turbic	. .		b.i.d
3. Time spent	developing well			5 0 n	nin.			(Desc			escribe)
	o control man						Color	Clear	,	`	Clear
4. Total well	depth (TOC) ((GS)	5	5.5 f	t.		Odor	None		·	None
	construction sum						Turbidity	None		·	Clear
Ť .		• •					HNu	N/A		·	N/A
Measured v	vell depth (Before	e)		7.5 f	.				1 .		
Measured v	vell depth (After)		5	7.5 ft	.	Filter Pack Vo	ol. (gallons)	0.057(R ² - 1	-2)ls =		4.3
5. Inside dian	•			. — — . 00 is	- 1	Well casing V	ol. (gallons)	0.16r ² l	=	3	0.3
			1	Saturated length of sand pack (ft.) (ls) 1 _ 2 0					2.0		
casing	water in fifter pac	ck and well	4	4. <u>6</u> g	aı.	Length of wat	er column (f	t.) (l)		4	7.4
7 Volume of	water removed fr	om well	2 2	5.0 g	a1	R = Radius of	f borehole (ir) r=W	ell radius (in.)		
/ volume of	water removed in	om won		6					g fluids were us	sed and	well is
Relative red	covery rate		ft. per.			at solid waste		·	J		
8. Volume of	water added (if a	ny)		g	al.	13 Total sus (500 ml	spended soli Unfiltered)	ds		mg/l	mg/l
Source of v	water added					14. COD	Unfiltered Si	n n		mg/l	-/I
	Gallons	· · · · · ·	Spec.	T		pec. Cond.	ommered St		(BEFORE) Meter	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(AFTER)
Time	Purged	pН	Cond.	deg. C		25 deg. C	Color	Odor	Turb.	D.O.	Comment
10:40	45	7.68	710	11.3			Clear	None	22.50	5.96	200 NTU Scale
10:50	90	7.70	725	10.9			Clear	None	16.00	4.84	201 NTU Scale
11:00	135	7.62	722	10.8			Clear	None	6.70	4.60	202 NTU Scale
11:10	180	7.62	715	10.8			Clear	None	4.38	4.42	203 NTU Scale
11:20	200	7.55	717	10.8	_		Clear	None	3.98	4.40	204 NTU Scale
				-							
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			<u> </u>	 	_						
	 	- '					-	****			

WATSON

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Project Name	Blackwell Landfill	Well No.	G140D							
Location	DuPage County	Project No.	3920.0041							
Developed By	DAP/ACC	Checked By								

Ī	. Can this w	ell be purged dry	?	☐ Yes 1	No			Before I	Development	Aft	er Development
2	. Well devel	opment method				(fr	epth to Water om top of ell casing)	a1	3.66	ft	1 3.61 ft.
	surged with bailer and bailed surged with bailer and pumped surged with block and bailed surged with block and pumped surged with block, bailed and pumped					nte:	mm	0 / 25 / 96 1 dd yy ■ a.m. 30 □ p.m.		10 / 28 / 96 nm dd yy ■ a.m. : 30 p.m.	
	compressed bailed only pumped on pumped slo Other	ly				bo	diment in well ttom:	——————————————————————————————————————	inche	es Cle	inches
3	•	developing well			<u>1</u> 5 m	ł		Turbid (Descr	ibe)	Tur	rbid cscribe)
4		depth (TOC) ((construction sum			n		Color Odor Turbidity HNu	None Turbid	White		None Clear N/A
	Measured w	ell depth (Before	:)	6	<u>0</u> . <u>7</u> ft		ack Vol. (gallons)		1) s =		3. 2
	Measured w	vell depth (After)		6	<u>0</u> . <u>7</u> ft	.	using Vol. (gallons)		=		7. 7
ľ	5. Inside diameter of well			. <u>0</u> <u>0</u> in	Saturat	Saturated length of sand pack (ft.) (ls)					
6	 Volume of water in filter pack and well casing 			1	1.0 gs		of water column (ft	.) (1)	-	4	7.1
7	7. Volume of water removed from well6 Relative recovery rate ft. per.				<u>0</u> . <u>0</u> ga	Collect	dius of borehole (in groundwater sampl waste facility:			ed and v	well is
8	3. Volume of	water added (if a	ny)		g		stal suspended solid 00 ml Unfiltered)	is	1	mg/l	mg/l
Į,	Source of w	vater added				14. CO	·			mg/I	
	Time	Gallons Purged	рН	Spec. Cond.	T deg. C	Spec. Con at 25 deg.		Odor	Meter Turb.	D.O.	Comment
	9:05	10	7.02	960	11.1		White/Yellow	None	Clear	1.14	Turb. meter
	9:07	20	7.06	950	11.1		SL Cloudy Whit	e None	Clear	1.15	charge ran out
	9:10	30	7.00	950	11.1		Clear	None	Clear	1.20	
L	9:12	40	6.99	950	11.1		Clear	None	Clear	1.26	
-	9:15	50	6.90	950	11.1		Clear	None	Clear	1.24	
L	9:20	60	6.95	950	11.1		Clear	None	Clear	1.20	
-								·	 		
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Project Name	Blackwell Landfill	Well No.	G141D	
Location	DuPage County	Project No.	3920.0041	
Developed By	DAP/ACC	Checked By		

1. Can this w	ell be purged dry	?	☐ Yes	No No				Before I	Development	A	ter Development
2. Well deve	lopment method					10 Depth to (from to) well casi		a	6.41	ft	<u>1 6.40</u> ft
surged wit	h bailer and baile	ed			i					İ	
surged wit	h bailer and pum	ped				Date:		b. 10) / 24 / 96		10 / 24 / 96
	h block and baile							mn	dd yy	1	mm dd yy
	h block and pump								☐ a.m.		☐ a.m.
	h block, bailed ar	nd pumped				Time:		c. <u>1</u> :		_ _2	
compresse					ł						
bailed only					- 1	11 Sediment	in well				
pumped or			<u>_</u>			bottom:		_	inch	es	inches
pumped sl	owly					12 Water O	bservations:	Clear	_	ا ر	ear 📟
Odiei			u			12 Water O	DSCI VACIOIIS.	Turbid			rbid 🗂
3. Time spen	t developing well			3 4 m	in.			(Descr			escribe)
•							Color	Clear	·	1	Clear
4. Total well	depth (TOC) (GS)		. fi	.		Odor	None			None
🧽 (From well	construction sum	nmary)					Turbidity	Clear			Clear
							HNu	N/A			N/A
Measured v	well depth (Before	e)	6	3.8 ft	<u> </u>	T'14 - D1- 17	-1 (1)	0.057/D2	2.1.		
Measured v	well depth (After))	6	3.8 ft		Filter Pack Ve	oi. (gailons)	0.05/(R°- r	')ls = -		8.2
5. Inside dian	neter of well			. 0 0 ir		Well casing V	ol. (gallons)	0.16r ² l	= .		7. 7
						Saturated leng	gth of sand p	ack (ft.) (ls)		1	2.0
6. Volume of casing	water in filter pa	ick and well	1	6.0 g		Length of wat	er column (f	t.) (l)		4	7.3
7. Volume of	water removed fi	rom well	8	5.0 g	al.	R = Radius of	borehole (ir	.) r = We	ll radius (in.)		
Relative re	covery rate		ft. per.			Collect groun at solid waste		le if drilling	fluids were us	ed and	well is
8. Volume of	water added (if a	any)		g	al.	13 Total sus (500 ml	pended solid Unfiltered)	is		mg/l	mg/l
Source of	water added					14. COD				mg/l	~~/l
<u> </u>	··						Unfiltered St	lfuric)	(BEFORE)		(AFTER)
Time	Gallons Purged	pН	Spec. Cond.	T deg. C		ec. Cond. 25 deg. C	Color	Odor	Meter Turb.	D.O.	Comment
1:22	20	7.50	680	12.5			Clear	None	1.48	1.20	
1:31	40	8.14	697	12.8			Clear	None	0.51	1.15	
1:37	55	8.26	692	12.5		·	Clear	None	0.44	1.10	<u></u>
1:43	70	8.40	686	12.2			Clear	None	0.28	1.09	
1:49	85	8.44	684	12.2			Clear	None	0.19	1.14	
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PROPOSED GROUNDWATER MONITORING PLAN

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PROPOSED GROUNDWATER MONITORING PLAN

QUARTERLY GROUNDWATER MONITORING

The objective of this activity is to detect changes in the chemical concentration of the groundwater in both the glacial aquifer and in the underlying bedrock aquifer in downgradient areas between the landfill and the Blackwell Forest Preserve's boundary during the period between remedial design and Record of Decision. Instructions for the collection of samples are located in Appendix A of the Field Sampling Plan for Pre-Design Investigation Activities, August 1996 (Vol. III of IV), and the attached Addendum (Groundwater Sampling and Testing SOP).

Description Of Response Action

The groundwater monitoring program for the site will consist of the following tasks:

<u>Task</u>	Schedule for Implementation
1. Implement quarterly monitoring	Upon approval of this Proposed Monitoring Plan
2. Recommend modifications to the monitoring program	Within the 30% Design Submittal
3. Implement O & M monitoring program	Upon receipt of the Record of Decision and Consent Decree or Unilateral Administrative Order

The tasks incorporate the requirements of the U.S. EPA's Scope of Work. The following sections provide the design and implementation plans for the quarterly monitoring program required in the U.S. EPA's Scope of Work. Upon approval of this Proposed Monitoring Plan, the quarterly monitoring program will be implemented. Changes to the monitoring program may be recommended in the 30% design submittal. These changes will be implemented as part of the long term O&M and monitoring program.

Purpose

The monitoring program will include field and laboratory testing of samples. Analytical results will be used to:

- Provide on-going characterization of groundwater quality downgradient of the site.
- Provide baseline groundwater data during the cap repair remediation, which may be utilized to estimate the length of time until groundwater standards are met through natural attenuation.
- Determine whether the reduction of contaminant loading from the cap repairs, in combination with natural attenuation and dilution, will allow for the standards of 35 IAC 620.410 to be achieved over time.
- To confirm that concentrations of groundwater contaminants do not exceed any MCL, an excess cancer risk greater than 10⁻⁶, or Hazard Index greater than or equal to 1.0, whichever is more stringent, at the Blackwell Forest Preserve's downgradient boundary.

New Wells

No new wells are proposed at this time. Additional monitoring well installations may be recommended as a modification to the monitoring program within the 30% Design Report, if any data gaps are identified during the first round of quarterly monitoring.

Monitoring Program

Existing monitoring wells have been selected for the groundwater monitoring program for the site. The wells are divided into: 1) detection monitoring wells located between the landfill and the Blackwell Forest Preserve's boundary; 2) compliance monitoring wells located along the downgradient boundary of the Preserve, and 3) other monitoring wells or piezometers for water level measurements only. The monitoring program is further divided into wells which monitor the glacial outwash aquifer (Figure F1) and those which monitor the underlying bedrock aquifer (Figure F2). The definition of detection and compliance monitoring, and the rationale for the choice of monitoring wells, is described below:

Detection Monitoring Wells

Glacial Outwash Aquifer Wells	Bedrock Wells
G107S	G128D
G117	G135
G123	G140D
G126	G141D
G127	
G129	

Compliance Monitoring Wells

Glacial Outwash Aquifer Wells	Bedrock Wells
G122	G133D
G133S	G138
	G139

Water Level Wells

Glacial Outwash Aquifer Wells	Bedrock Wells
P2	G131D
Р3	G132
G114	G134
G118S	G137
G121	
G130S	

The detection monitoring wells listed above were chosen to monitor downgradient groundwater quality concentrations between the landfill waste boundary and the FPD property boundary. These wells were chosen as detection monitoring wells, because they are in the best locations, downgradient of the landfill, to assess any changes in groundwater quality relative to existing concentrations.

The compliance monitoring wells were chosen, because they are located closest to the FPD property boundary, downgradient of the landfill. These wells will be used to confirm that concentrations of groundwater contaminants in these boundary wells do not exceed any MCL, cancer risk greater than 10^{-6} , or Hazard Index greater than or equal to 1.0, whichever is more stringent.

The water level monitoring wells were chosen to provide additional water level data from that collected from the detection and compliance monitoring wells. As a network, these wells can be used to establish groundwater flow direction and velocity at the time of quarterly monitoring.

it is anticipated that one or more upgradient wells may be added to the monitoring program following assessment of the first round of quarterly monitoring. Any additions to the groundwater monitoring program will be proposed in the 30% design report.

Quality Control Sampling

Quality control samples will be collected, and will consist of sample duplicates, field blanks, and matrix spike/matrix spike duplicates (MS/MSD) samples, as described below.

Field Blanks (FB)

A laboratory prepared sample of reagent grade water will be routed through decontaminated san.pling equipment to assess the effectiveness of decontamination procedures.

For Level IV water samples, one field blank will be prepared for each container type and size. Field blanks will be prepared according to the following schedule for each sampling activity:

- One field blank for every 10 or fewer samples of water collected; and
- For each sample period, a minimum of one blank for each group of parameters per sample matrix.

The field blank samples will be prepared using deionized water stored in polyethylene containers. For monitoring well samples, the water will be routed through the previously decontaminated sampling device before transfer to the container.

Trip Blanks (TB)

A water sample, prepared by the laboratory, will be transported to the site. The sample will remain unopened and be returned to the laboratory for analysis to evaluate QA/QC of sample handling procedures.

A trip blank for VOC analyses will be included in each sample cooler containing water matrix samples intended for VOC analysis. The trip blanks will consist of two 40-ml VOA vials filled with deionized water with a Milli-Q cleanup. It will be prepared in the office or laboratory, transported to the field and shipped with the other samples to the designated laboratory without being opened. It will be packaged using standard procedures as for other sample bottles.

Matrix Spike and Matrix Spike Duplicates (MS/MSD)

An additional sample volume collected in the field and sent to the laboratory for analysis. The results are used to evaluate the effect of the sample matrix on the digestion and measurement methodology. For water samples, one sample per group of 20 or fewer samples collected for VOC and SVOC analysis during each sampling activity will be selected for matrix spike/matrix spike duplicate (MS/MSD) analysis. For SVOCs, double the normal sample volume will be collected (i.e., four, 1-L bottles). For VOCs, triple the normal sample volume will be collected (i.e., six, 40 ml vials).

Sample Duplicates

A duplicate sample taken in the field and analyzed in the laboratory to evaluate the homogeneity of the sample medium and the precision of the laboratory. One duplicate sample will be collected for each increment of 10 or fewer samples collected for each matrix during each sampling period. A duplicate sample will consist of a sample obtained from the same sampling device as the original sample.

A summary of the investigative and QA/QC samples is presented in Table 1-1. of the QAPP for Pre-design Investigation Activities (Vol. IV or IV) (August 1996). The supplier of the contaminant free sample containers will be the I-Chem Company. The containers will be CLP Level 300 series bottles.

Sampling Method

Low flow sampling procedures will be used to obtain all groundwater samples. This sampling technique is described in the attached SOP (Addendum to the QAPP for the Pre-Design Investigation Activities, August 1996).

Groundwater Sampling Frequency

The groundwater monitoring program will consist of performance of field and laboratory testing of the samples collected from each of the wells listed above. The monitoring program will begin following approval of this monitoring program. Sampling will be performed on a quarterly basis. Additional parameters will be included on an annual frequency. Table 1-1 of the QAPP for Pre-Design Investigation Activities (August 1996) (Volume IV) provides a listing of the parameters and frequency of sampling.

The U.S. EPA SOW indicates that if quarterly groundwater monitoring over a period of eight quarters indicates that contaminant concentrations throughout the system of groundwater monitoring wells are not increasing, the FPD may petition the U.S. EPA to allow monitoring on a less frequent basis. The U.S. EPA Statement of Work also states that if additional information indicates that the groundwater monitoring program is inadequate, the U.S. EPA may require that additional groundwater monitoring wells be added to the program.

Sample Analysis

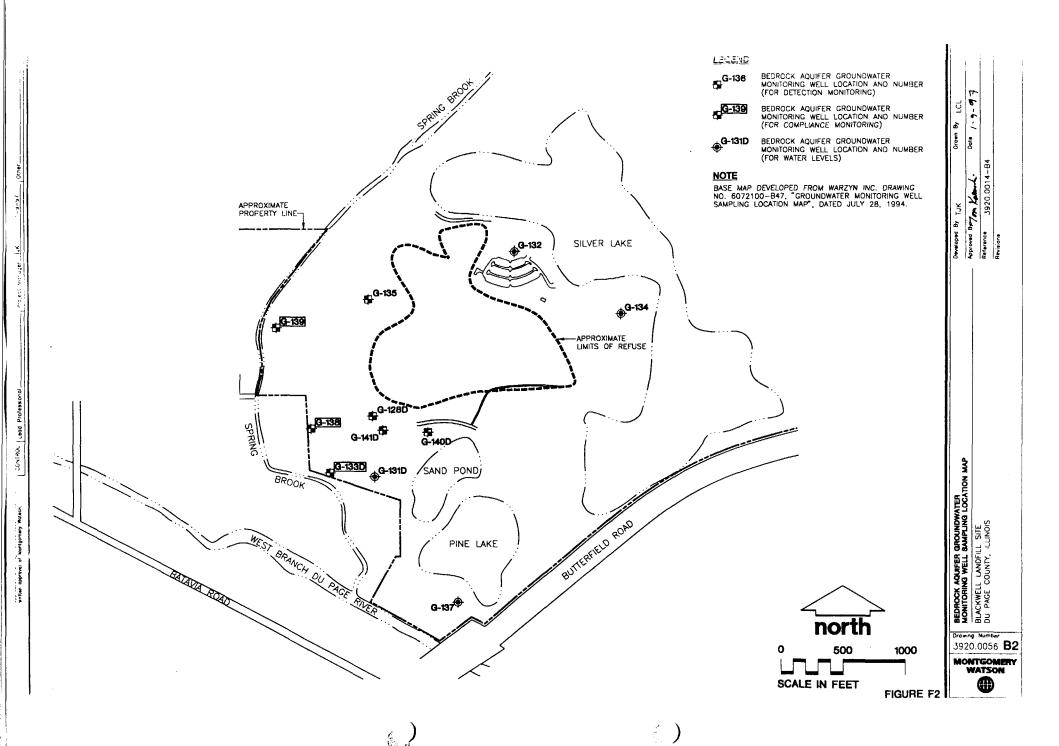
Groundwater samples collected will be analyzed in the field and the analytical laboratory, as appropriate, for the parameters specified in Table 1-1 of the QAPP for Pre-Design Investigation Activities (August 1996). Groundwater samples will be analyzed for volatile organic compounds on the Target Compound list (TCL), semi-volatile organic compounds on the TCL, and the full Target Analyte List (TAL) of metals. Indicator parameters include chloride, sulfate, and TDS. Field parameters to be measured and recorded for each monitoring well are groundwater elevation, pH, temperature, turbidity, specific conductance, redox potential, and dissolved oxygen.

Analyses will be in compliance with, and meet the reporting limits required by, the State of Illinois' Groundwater Quality Standards at 35 IAC 620, and any Maximum Contaminant Level (MCL) designated at 40 CFR Part.

If additional information indicates that the groundwater monitoring program is inadequate, the U.S. EPA may require additional field or laboratory analysis of additional parameters.

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GROUNDWATER SAMPLING AND TESTING SOP

GROUNDWATER SAMPLING AND TESTING SOP

Subject: Groundwater Monitoring Well Sampling

Method: Low Flow Sampling with Submersible Pump

SCOPE AND APPLICATION

- 1. In wells in more permeable formations, complete evacuation of a well is not always possible or desirable. The U.S. EPA (1983) recommends collecting a sample when 95% of the purged water is coming from the formation. The USGS (1980) recommends purging until the temperature, pH and conductivity stabilize. This method may lead to excessive and unnecessary volumes being withdrawn and cause disposal problems.
- 2. Montgomery Watson purges wells to meet recommendations of the U.S. EPA. Montgomery Watson removes three to five well volumes, or the well is purged until the pH, temperature and conductivity stabilize (after a minimum of three volumes are removed). This should result in a sample that represents the in situ groundwater sample.
- 3. In addition to the volume of water purged from a well, the position of the pump (or bailer) intake when purging is an important factor to consider during well evacuation. The flow patterns established by the intake position will ultimately determine the position from which a sample, representative of in situ groundwater, can be collected. As stated by U.S. EPA (1983):

"When water is removed from the top of the water column standing in the well, water flow through the screen and up the well to the point of removal. In this manner the entire column of water in the well is exchanged during evacuation. If enough water is evacuated to account for any mixing between the stagnant water previously standing in the well and fresh formation water brought into the well, samples may subsequently be taken from any position in the well.

When water is removed from the screened portion of the well, a different pattern of flow is established in the well during evacuation. Until the drawdown stabilizes, water flows from the column of water above the screen as well as through the screen from the formation. However, after drawdown stabilizes, water located in the well above the screen is no longer removed and all evacuated water comes from the screened portion of the well. For this reason, samples may subsequently be taken only from the well screened portion of the well. However, in many cases, much less water must be evacuated from the well than if water was evacuated from the top of the well. Enough water must be pumped, however, to stabilize the drawdown in the well and to subsequently ensure adequate exchange of water standing in the screened portion of the well with formation water."

NOTES

- 1. Sample the least contaminated well first. (Sample in increasing order of contamination.) If the degree of contamination is unknown, sample upgradient wells first.
- 2. Minimize aeration of the sample during purging and sample collection. Changes in partial pressure and aeration may alter the sample's integrity by precipitating metals, volatilization of organics, etc.
- 3. **Do not** allow pump to "splash" into well. This will result in aeration of the sample.
- 4. Follow proper decontamination procedures. Specifics may vary when there is a project sampling plan.
- 5. **Do not** send a pump down a well very fast until you have determined the well is not "kinked". Otherwise, the pump may jam in the well.
- 6. Connect pumps to nylon rope using the bowline knot. Cinch knots may become untied.
- 7. Keep all samples on ice after sample collection.

I. PRE-FIELD CHECKLIST

- A. Paperwork to take to the site
 - 1. Completed monitoring well construction summary for the wells to be sampled
 - 2. Monitoring well development summary forms
 - 3. Health and Safety Plan
- B. Equipment to take to the site
 - I. Field Notebook
 - 2. Watch, or timing device
 - 3. Electronic water level indicator
 - 4. 5-gallon bucket
 - 5. Plan for disposal of water (see Section II.H.)
 - 6. Decontamination solutions and buckets
 - 7. pH meter
 - 8. Specific conductance meter
 - 9. Turbidity meter
 - 10. Fump (Grundfos, or equivalent), generator, extension cord (50 feet)
 - 11. Polyethylene tubing, hose clamps
 - 12. Graduated container
 - 13. Hand tools (socket set, hammer)
 - 14. Sample bottles (EPA540/R93/051/Dec/92) and preservatives (HCL and HNO₃)
 - 15. Sample labels and tags
 - 16. Well access (key)

- 17. Drums or poly tank for containing purge water
- 18. Cooler(s) with ice
- 19. Packing material (vermiculite, tape)
- 20. Chain of custody forms

II. LOW FLOW SAMPLING WITH SUBMERSIBLE PUMP

- A. Measure and record depth to water from top of the well casing with electronic water level indicator. Examine the water level indicator for evidence of sheen, oily surface or other immiscible fluids and record this information in the field log book.
- B. Measure and record total depth from top of well casing with electronic water level indicator.
- C. Refer to monitoring well construction summary for depth to top of the well screen. Attach new, clean polyethylene tubing to the Grundfos pump. (Teflon® tubing was considered for sampling purposes but not selected due to its excessive rigidity which makes the tubing difficult to attach to the pump and handle while raising and lowering the pump in the well. This material is more ideally suited and typically utilized for dedicated well sampling systems, including bladder pumps or Waterra inertial lift pumps). A rinsate blank will be collected from the pump and tubing prior to sampling. The Grundfos pump will be decontaminated upon arrival at the site and between each sampling location as specified in II.I.
- D. Lower the Grundfos pump so that the pump rests approximately one foot above the well screen.
- E. Begin purging the well at a rate of approximately 300 ml per minute. Confirm the purge rate by measuring the amount of water purged in one minute with a graduated measuring device, such as a bucket, or sample container. Observe the purge water for evidence of a sheen, oily surface or other immiscible fluids and record this information in the field log book.
- F. Purge the volume of water contained in the tubing (it is assumed for all wells, the length of tubing will be 100 feet; therefore, for 1/2-inch diameter tubing, the volume of water purged from all wells will be 1.0 gallons). After the initial purge of 1.0 gallons, field measurements for pH, specific conductance, temperature, and turbidity will be monitored. Measurements of pH, specific conductance, and temperature will be collected in-line or by inserting instrument

probes into a bypass stream of water from continuous pump discharge. The bypass stream will be directed into a sample container (250 ml poly jar) for parameter measurement. Turbidity measurements will be collected from the bypass stream into its own collection and measurement device.

- G. When pH, specific conductivity, temperature, and turbidity readings have stabilized for three consecutive readings within 10% of the previous readings, sample bottles can then be filled. Samples collected for volatile organic analyses shall be filled first. Samples shall be placed in a cooler and iced immediately after collection.
- H. Purge water will be contained by placing purge water into drums (steel or poly) at each well location, or by pumping into a poly holding tank which can be placed onto the back of a pickup truck. The purge water will be stored in the designated storage area. If the water is contained in the poly tank during purging, the tank will then be moved to the designated containment area and the water will be pumped into drums and staged for future disposal. Water will be carefully pumped into the drums with enough space left in the drums to allow for freezing of water without causing the drums to crack or leak.
- I. Upon completion of the sampling event, promptly remove the sampling pump from the well and decontaminate the pump by inserting the pump into a 5-gallon bucket prepared with a distilled water and Alconox solution, followed by a distilled water rinse. Water generated during decontamination will be collected and containerized in 55-gallon drums. The drums will then be sealed, labeled and stored in the off-site containment area for future disposal.

III. SAMPLE LABELING AND TAGGING

- A. Sample labels and tags are used in conjunction with chain-of-custody documents to ensure sample identification, preservation, and custody requirements are maintained. Each label and tag will be labeled with a sample identifier code as defined in the QAPP.
- B. Adhesive labels are used to identify all samples collected by Montgomery Watson personnel during field activities with the exception of samples collected for submittal to laboratories through the U.S. EPA Contract Laboratory Program (CLP) (federal lead investigation).

The adhesive label should be affixed to the sample container prior to sample collection. Condensation may form on containers after filling which would make it difficult to adhere labels.

U.S. EPA Sample Tags are used to identify all samples collected under the U.S. EPA Contract Laboratory Program (CLP). Tags are affixed to each to the bottles using a loop around the neck of the bottle. The information on the

sample tag is filled in completely, with the sample identifier code described above.

IV. SAMPLE COLLECTION AND PREPARATION

A. All sample containers received from the laboratory will meet the specifications and protocols of U.S. EPA guidance document EPA540/R-93/051/12-92.

B. Volatile Organic Compounds

- 1. Remove the plastic cap and Teflon® coated septum being careful not to contact potential contaminants. If vial and/or cap appears to be defective, discard and use a new vial. The vial should be opened for a minimum amount of time. Three (3) vials must be collected for each sample.
- 2. Carefully fill the vial with continuous low flow from the pump with water until meniscus (mound of water) forms on the top. Avoid agitating the sample as this may cause a loss of volatiles. Add four drops of 1+1 hydrochloric acid (HCL) to the sample for preservation. HCL preservation may be added to the vial either before or after sample collection.
- 3. Carefully replace the cap on the meniscus. This will force a small amount of water off the top. Check the vial for air bubbles by inverting vial and gently tapping the side of the vial. Bubbles will rise to the top, if present. If bubbles are present, discard the vial and start with a new one. Place samples into cooler with ice upon sample completion.

C. Semi-volatiles and PCBs

- 1. For sampling of semi-volatile organic compounds and PCBs, two 1-liter amber glass bottles for each parameter are to be filled to the shoulder. Sampling should continue to be performed at the low flow purge rate of 300 ml per minute.
- 2. No preservation is required for either semi-volatiles or PCBs. Therefore, upon completion of filling sampling bottles, immediately place the bottles in a cooler with ice.

D. Metals (Dissolved and Total Metals)

Unfiltered Metals (Total Metals)

1. Continue to purge well at 300 ml per minute. Fill 1-liter polyethylene container to the shoulder. Preserve with 3 ml, or until pH<2, of HNO₃. Place sample into cooler with ice.

Groundwater Sampling & Testing

Filtered Metals

- 1. While continuing to purge at 300 ml per minute, install a 0.45 micron filter to the discharge line of the sampling pump, making sure the arrows on the filter are pointing in the direction of sample flow. Filter the sample into the appropriate sample container (1-liter polyethylene).
- 2. Once the container has been filled, add 3.0 ml, or until pH<2, of 1:1 Nitric acid (HNO₃) per 1 liter of sample. Sample should be filtered and preserved as quickly as possible after collected, generally within 20 minutes of sample collection. Place sample into cooler with ice.

V. DOCUMENTATION

A. Field Notebook

All sample collection activities will be documented in the field log book. The field log book will contain the following information:

- 1. Sampling location
- 2. Sample identification number
- 3. Date and time of collection
- 4. Depth to water
- 5. Purging rate and approximate volume purged
- 6. Field Parameter measurements
- 7. Type(s) of sample containers
- 8. Field observations (weather, odor, sheen, etc.)
- 9. Name of sampling personnel
- 10. Preservation method
- Analyses requested

B. Chain-of-Custody Forms

- 1. The COC record will be used to document the samples taken and analyses requested. Information that field personnel will record on the COC record includes the following:
 - Project name
 - Sampling location
 - Printed name and signature of sampler
 - Sample identification number
 - Sample label number
 - · Date and time of collection
 - Sample designation (QA/QC, grab or composite)

- Sample matrix
- Number and Size of Containers
- Analyses Requested
- Signature of Individual Involved with Custody Transfer (including date and time of transfer)
- 2. COC records initiated in the field will be signed, placed in a plastic "zip-lock" bag and secured inside of the shipping container used for sample transport. Signed air bills will serve as evidence of custody transport between the field sampler and courier as well as the courier and laboratory. Copies of the COC record and the air bills will be retained and filed by the sampler prior to shipment.

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FIGURE 1

LIMITS OF FILL MAP

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FIGURE 2

CAP THICKNESS AND PERMEABILITIES MAP

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FIGURE 3

PROPOSED SUPPLEMENTAL TEST BOREHOLE AND SHELBY TUBE SAMPLE LOCATIONS

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